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FIELDIANA: ANTHROPOLOGY

A Continuation of the

ANTHROPOLOGICAL SERIES

of

FIELD MUSEUM OF NATURAL HISTORY

VOLUME 44



CHICAGO NATURAL HISTORY MUSEUM
CHICAGO, U. S. A.
1955

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PROTO-LIMA

A MIDDLE PERIOD CULTURE OF PERU

A. L. KROEBER

APPENDIX: CLOTHS

DWIGHT T. WALLACE

FIELDIANA: ANTHROPOLOGY

VOLUME 44, NUMBER 1

Published by

CHICAGO NATURAL HISTORY MUSEUM

DECEMBER 15, 1954

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PROTO-LIMA

A MIDDLE PERIOD CULTURE OF PERU



JAR FROM PROTO-LIMA GRAVE; $\times 0.7$

PROTO-LIMA

A MIDDLE PERIOD CULTURE OF PERU

A. L. KROEBER

Research Associate, American Archaeology

APPENDIX: CLOTHS

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Acknowledgment

In 1925 and 1926, I conducted the First Marshall Field Archaeological Expedition to Peru to prosecute research under the direction of Berthold Laufer, Curator of Anthropology.

From this Expedition four publications have resulted in volume II of the Anthropology Memoirs of the Museum, under the general title *Archaeological Explorations in Peru*, nos. 1-4:

1. Ancient Pottery from Trujillo.
2. The Northern Coast.
3. Textiles of the Early Nazca Period, by Lila M. O'Neale, with Introduction by A. L. Kroeber.
4. Cañete Valley.

The present report, in the more compact and modern format of Fieldiana, constitutes a fifth installment of what I was able to acquire for science and the Museum through Mr. Field's support. I regret that it comes twenty-eight years after the explorations, but I am glad that I have been able finally to liquidate the obligation.

I hope, health and strength permitting, to complete a sixth installment, presenting at least some of the discoveries made on my second trip to the area of Nazca in 1926.

Even such a report, however, would leave undescribed certain parts of the collections resulting from my explorations. These are: (1) Late period burials and grave inventory at the same site of Maranga from which were extracted the Proto-Lima remains which form the subject of the present publication, but considerably more abundant than these; (2) other Late period remains found with some eighty interments in a cemetery at Marques north of the mouth of the Chillón River; (3) results of excavations in disturbed archaeological soil at Infantas, Chuquitanta, and Armatambo in the Chillón and Rimac valleys; (4) cemetery excavations of various periods from Nazca to Tiahuanaco-influenced and Late Ica type in the Nazca Valley. Except for the third, these groups of specimens consist primarily of objects found with human bodies or skeletons, hence segregable into grave-lots and carrying the virtue of assurance of contemporaneity for all articles associated in a lot. This fact will give this material—none of which is

showy or sumptuous but which rather represents the obscure Peruvian middle class of pre-Spanish times—a certain authenticity and value for working out with precision the history and flow of native culture in its later centuries. Museum associates or assistants, and young students of Peruvian culture who have not yet been able to visit Peru, will find here a storehouse of specimens with data on which they can at one and the same time learn their trade and make a professional contribution to South American archaeology.

I wish to express my special appreciation of the trouble taken by Dr. Donald Collier, Curator of South American Ethnology and Archaeology, to help me in the preparation of this report. He has found and identified specimens, compared and checked them, seen to their being drawn or photographed, made available to me catalogue entries or new descriptions in case of doubt—in short, he has done a hundred things which would have been my business if I had been able to prepare the report in Chicago. Without his conscientious and effective aid, the manuscript could not have been completed, and I owe him unstinted thanks for his unstinted labor of rescue.

A. L. KROEBER

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History of the Exploration

My 1925 expedition to Peru on behalf of Chicago Natural History Museum (then Field Museum) included three activities. The first was excavation in the Lima and Chillón valleys; the second, excavation in the Cañete Valley; the third, reconnaissances in Nazca and in northern Peru. The result of the last of these activities has been published by the Museum in *Anthropology Memoirs* (vol. II, no. 1 in 1926 and no. 2 in 1930); of the second, in the same volume (no. 4) in 1937.

The excavations in the Lima and Chillón valleys have until now not been described in detail. They yielded about 2,000 separate objects, listed under 1,300 catalogue entries. Most of these are of the Late native period, covering perhaps the last two or three centuries before the Spanish conquest. This period was one in which the Lima Valley was only moderately prosperous and its culture was lacking in distinctive features. I have several times designated this culture by the term Sub-Chancay, a word which would be misleading if construed to mean that the culture was earlier than that of Chancay Valley. Rather, the two were contemporaneous. I might perhaps better have called it "Substandard Chancay" or "Base Chancay," for it is a less distinctive exemplar of the Late culture of the valleys of Chancay and Huaura (Huacho)—the white pottery less white, the designs and shapes mixed or blurred, and so on.¹ The chief value of this Late part of the collection is that, in distinction from most Peruvian collections, it is a representative, average sample of the culture as preserved in tombs, cemetery fill, and rubbish heaps; it is not selected; and it will therefore repay careful, analytic, but condensed description.

At Armatambo behind Chorillos, I found the ancient site much disturbed by previous commercial digging. So I shifted, after an unsuccessful attempt to examine the great Huaca Juliana near Miraflores, to Hacienda Marques at the mouth of the Chillón River. Here I excavated some eighty mummies of middle-class and poor persons, and then transferred my workmen to the great mounds on the Lima-Callao highway on the property

¹ Tello took up this use of "Sub-." His "Sub-Chavín," for instance, means "not quite classical or full-type Chavín." He definitely does *not* mean "earlier than Chavín, stratigraphically subadjacent to Chavín."

generally known in 1925 by the name Aramburú, called also "Huatica" or "Huadca" by Middendorf, and recently "Maranga" by Jijón y Caamaño.

Uhle had attributed these enormous Maranga huacas to the Proto-Lima culture, which I knew from his collections made at Nievería, upstream from Lima and near the large ruin of Cajamarquilla. Even the most superficial inspection sufficed to show that the Aramburú or Maranga constructions were built of smallish, near-cubical, hand-made adobe bricks very different from the larger ones of Late period. Further, while these great heaps yielded pottery, cloth, and metals of Sub-Chancay or Late era, they also contained many fragments of a heavy pottery of quite different style, which could not well be construed otherwise than as earlier. Uhle had construed this non-Late ware as Proto-Lima, but it was not wholly identical with his Proto-Lima pottery from Nievería; and neither he nor anyone else appeared to have found at Aramburú-Maranga either whole vessels or intact graves of this Proto-Lima or non-Late type.

I planned therefore to penetrate in the Aramburú-Maranga huacas, if I could, to undisturbed cemeteries or deposits of the pre-Late people, whoever they might prove to be, who had reared these structures. In this I was finally successful; but it required probing and clearing excavations that involved the removal of 71 Late period mummies to reach the 15 undisturbed earlier bodies finally encountered. Fortunately for their distinction, these early corpses were laid extended and lashed to frames or litters, whereas the bodies belonging to the Late period, at Aramburú as at Marques, were flexed and generally seated. The associated artifacts were also mostly quite different. There could thus be no question of the separateness in time of the two populations. It is the objects belonging to the earlier of the two cultures that are described here, as being more novel, at least at the time of their discovery. The much more extensive Sub-Chancay or Late remains are not described.

In this connection I wish to express appreciation of the work of Sr. Jacinto Jijón y Caamaño at the same site, the results of which he published in 1949 in his important monograph, *Maranga*. Sr. Jijón also was a visitor in Peru in 1925, and I profited from several archaeological discussions with him. In particular, I learned to appreciate the soundness of his judgments of stylistic relations. He excavated in the same group of huacas, especially in the one which he and I agreed in calling no. 15¹ after Middendorf, who first mapped the cluster,² and whose sketch map is reproduced in my figure 1.

¹ Jijón also calls it "Huaca III."

² E. W. Middendorf (1893-95, vol. 2). Map on page 80; photographs on or facing pages 80, 82, 84, 92; description on pages 79-96.

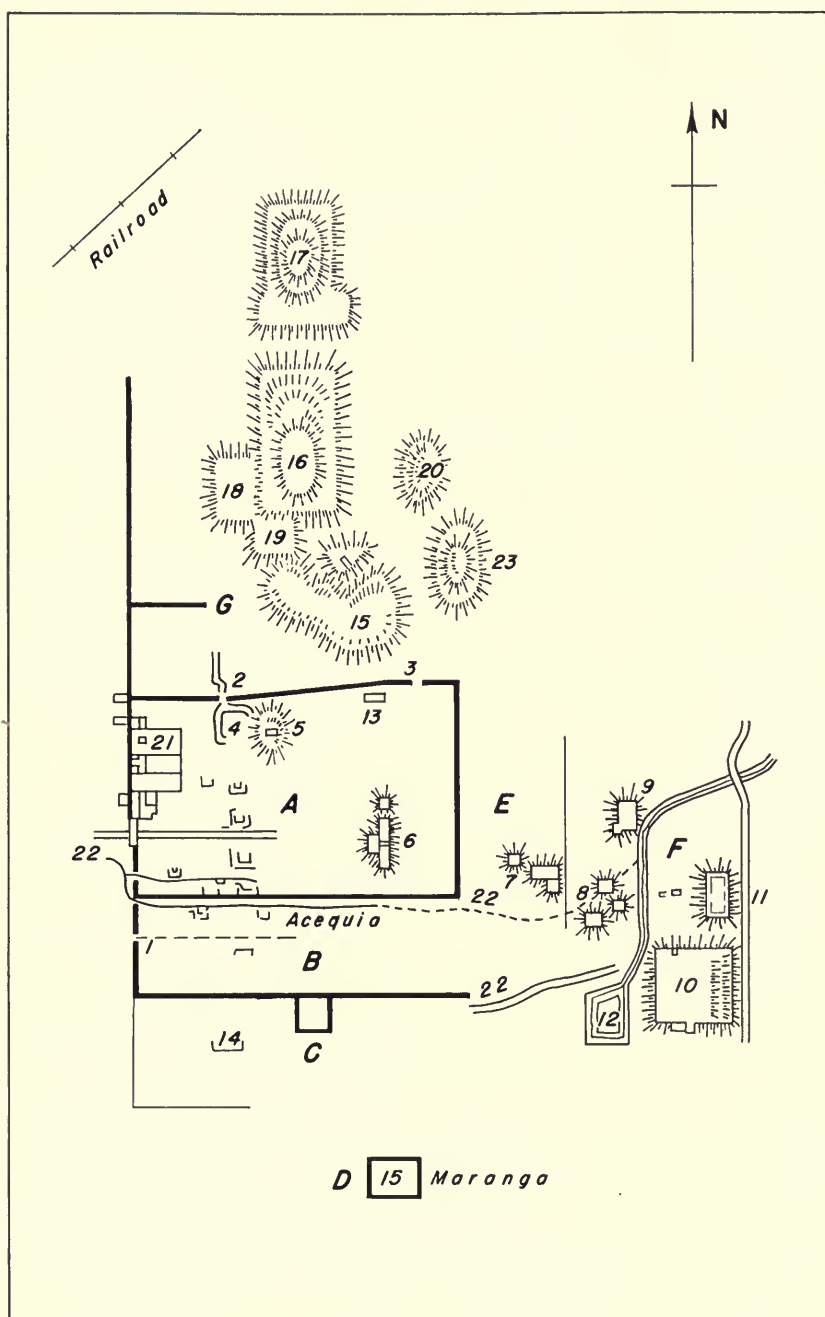


FIG. 1. Sketch map of Maranga-Aramburú pyramids, redrawn from Middendorf.

Sr. Jijón in fact virtually continued my earlier period excavation, digging almost next to it¹ and going deeper down than it; which is something that perhaps I should have done, and quite likely would have done, if the prospect of exploring virgin territory in Cañete Valley and of making at least a reconnaissance to Nazca had not beckoned.

When *Maranga* appeared, I was of course much stimulated, and the present report is the result. *Maranga* also led me to concentrate on my Proto-Lima finds; and as these were so much less numerous and bulky than the Late collection, Colonel Clifford C. Gregg, Director, put the relevant specimens at my disposal in New York, where I was engaged at Columbia University for the years 1948-52—an accommodation for which I am most grateful.

Certain differences between Sr. Jijón's conclusions and mine, beyond a corroboration in fundamentals, must be left for discussion after the presentation of my data. The problem of the relation of the artifacts found with the Proto-Lima burials and of the mainly heavy sherds found scattered in the fill of the huacas, is also best deferred until then.

My probing and sampling excavations were confined to the two mounds that Middendorf designated as 15 and 16 (and Jijón as 15 or III and 16 or I, respectively). It was only at the one spot in Huaca 15 that either Jijón or I succeeded in reaching Proto-Lima burials. The two mounds, 15 and 16, lie, more or less in line, south and north respectively of the Avenida Progreso, the concrete highway connecting Lima and Callao—the first modern-type interurban road for automobile traffic built in Peru, I believe, and in active use by 1925. The old *carretera* for horse-drawn traffic, and the railway to Callao, passed north of mounds 16 and 17. The Rimac River also lay to the north. Figure 1, based on Middendorf, shows the layout as of 1893.

¹ The Jijón "plano I" (1949) shows the north edge of his excavation almost reaching to the south edge of my much smaller one, but in his text (p. 5) he speaks of starting his digging 34 meters south of mine. Presumably it spread from that point both north and south. He operated with an average of 25 workmen (p. vi), I with three highland Indians and occasionally one or two helpers. By March 21, 1925, I had begun to dig down systematically in Huaca 15; I ended my Proto-Lima excavation on April 8, 1925. Jijón began in the north mound of the group on March 11, dug in mound 15 after I left it, and finished July 11, 1925.

The Huacas or Mounds

MOUND 16

Mound 16 is the largest in the great cluster. Figure 2 sketches its plan, figure 3 shows it from the south. I measured the levels or platforms of the top of its main body as aggregating 315 paces from north to south, to which I estimated that some 80 paces would have to be added for the horizontal spread of the slopes. As my pace is close to 30 inches, these nearly 400 total paces would come to just about 300 meters. The east-west breadth on top at the north end, which is lower than the rest, I paced at 115 steps. This would be equivalent to some 85 meters, to which at least 30 paces on each side, or 60 meters in all, would have to be added for the horizontal extension of the slopes. It is to be understood that the sharp edges and corners have crumbled and rounded enough so that to an inexperienced glance the huacas might pass as natural hills.

The main body of the mound is adjoined at the south end of its western flank by a lower extension¹ (fig. 4), a two-level platform measuring 165 paces long (north-south) by 120 paces wide, or 125 by 90 meters, plus the extent of its side slopes. Of the length of 165 paces, 140 are adjacent to the main mound and 25 project south of its south face.²

As for height, my notebook estimates of successive levels from the north end to the middle aggregate 76 feet; from the west eastward across the extension to the south part of the main mound, 82 or 87 feet, plus a small raised area in the middle of the south edge; and, standing at the southeast corner, I recall estimating a drop of 90 or perhaps 100 feet down to the highway and plain below. Uhle (1910, p. 362) estimates the three dimensions of the mounds at 300+, 120+, and 30-35 meters.

On the assumption of averaged dimensions of 270 by 100 by only 15 meters, the main body of mound 16, without its southwest extension,

¹ Middendorf gives this southwest extension a separate number, "18," but I have treated it as part of 16.

² By now, these mounds have probably been surveyed with elevations and contours. If so, a comparison of the exact measurements with my approximations and estimates will give an idea of my personal equation in the latter, which in turn will throw light on the reliability of others that I have published. See also the air photographs of these mounds in Appendix III.

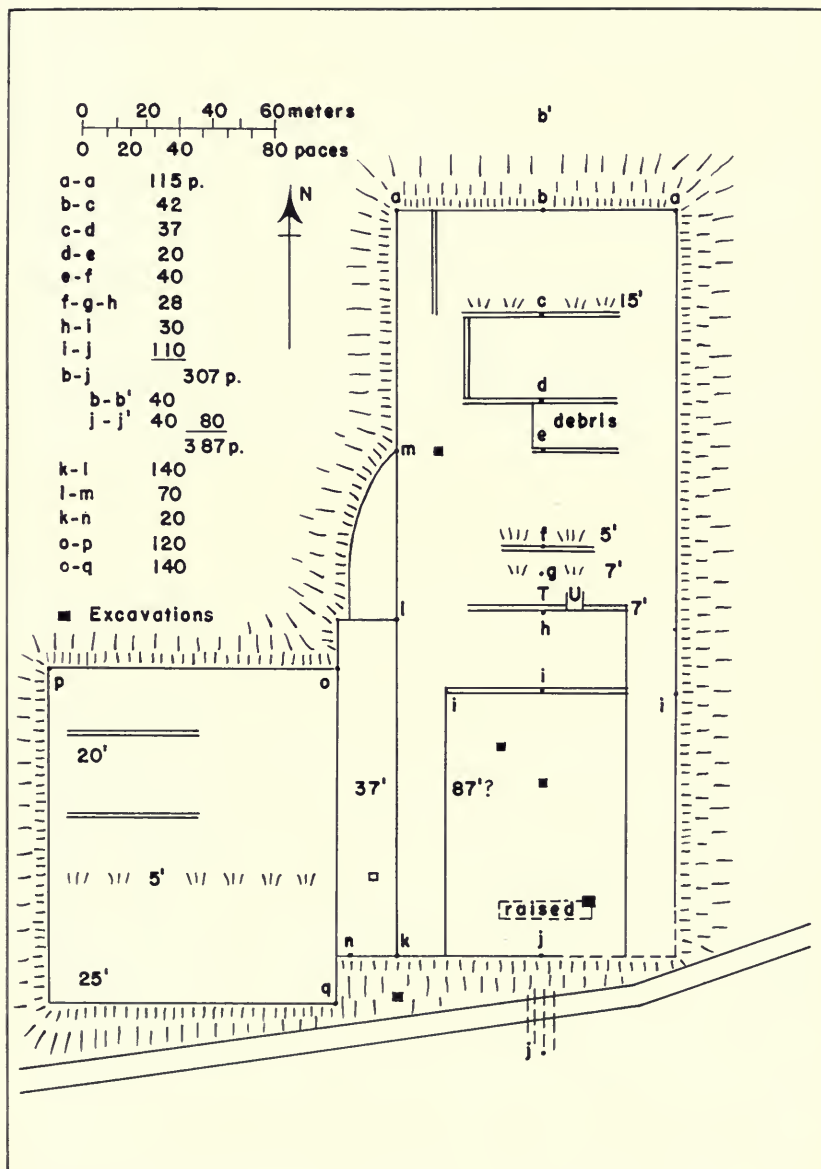


FIG. 2. Sketch plan of Maranga pyramid 16.

would contain 400,000 cubic meters, or 14,000,000 cubic feet. Uhle (1910, p. 362) assumes that the three main pyramids at Aramburú may be built over natural elevations, yet contain each 500,000 cubic meters or a million tons of bricks. This enormous bulk is of interest in the present connection as having been reared by the same people the other aspects of whose culture are described in *Maranga* and the present paper.

I append some transcriptions from my 1925 notebook:

"The top of mound 16 everywhere shows a honeycomb of wall-structure of adobe bricks, filled with rock, soil, maize leaves, and sherds. These sherds, of Proto-Lima type, often very thick, were evidently thrown in as part of the fill [see fig. 5]. Jijón thinks rock was used as fill chiefly or only near the top of the huaca, but this seems doubtful. For instance, two previous excavations in the southwest extension platform showed some rock among the soil of the graves.

"At the foot of the southwest extension, under soil full of bones and rags, which had tumbled and slid down when the highway sliced through the edge of the huaca, there were, at depths of 2 to 3 meters, mummies seated upright and children's mummies laid flat. These were between walls of adobe bricks, but seem to be secondary burials, made through previous [overlying or fronting] ones. Jijón is convinced of this; Tello thinks that the burials may have been made in the platform as it [gradually] rose, and that the [sherds of] Proto-Lima jars were [the remains of] offerings and were let into the surface of the grave-chambers either at the time of construction or later. [This opinion of Tello's would seem to imply that he then thought that the Sub-Chancay burials and the Proto-Lima offerings might have been deposited simultaneously.]

"The 'Uhle chamber,'¹ and an adjacent excavation to the west of it, are filled with adobe bricks, stones, gravel, and sherds; big, thick potsherds are particularly abundant. In Uhle's southeast corner room, there are two vertical logs, one in each of the south corners; at the base of these there is an earth pavement; below these, adobe bricks resume. An excavation west thereof also showed a tree trunk. Occasionally many parts of a vessel, especially small ones, occurred together, as if they had been thrown in at one time. Jijón reports finding many fragments of one very large vessel close together.

"Adobe bricks are normally stood vertically, on one of their two smallest sides, except sometimes in floors.

¹ Probably the excavation pictured in Uhle (1910, fig. 13). His photograph shows very well the adobe masonry, fill, and broken storage jars. This is in the area of my T, U—the latter designated after Uhle.



FIG. 3. Maranga pyramid 16 as seen from pyramid 15.



FIG. 4. Southwest terrace of pyramid 16 as cut by highway.

"The direction of the long axis of the mound, and of 17, seems nearer NNE-SSW than N-S.¹ The same is true of Huaca Juliana near Miraflores."

This ends the general entries on Huaca 16 in my 1925 notes.



FIG. 5. Mud bricks alternating with sherds and rubbish at T and U in pyramid 16.

Specimens taken by me from mound 16 are as follows:

From spots T and U on summit, as per diagram: 168990-169004, 169265.

¹ As this impression remains unverified at the time of drafting, I have in all plates left "N" designated as usual by a vertical. But the air photograph shown in figure 93 and discussed in Appendix III shows that my impression was correct. All maps should therefore be read rotated one point to the right, so that the arrow for N would point to what is usually NNE.

From "Excavation 16," by highway, at south foot of south face of Mid-dendorf's huaca 18, viz., southwest terrace of 16: 169076-086, 169093-103, 169132-139, 169233-234, 169226.

From various parts of 16: 169175-179, 169267-268, 169363-366.



FIG. 6. Tracing from figure 5, marked for measurement of brick sizes.

Figure 5 shows the typical structure of huacas 15 and 16: sundried adobe brick masonry alternating with fill of sherds and rubbish. Figure 6 traces parts of this, with a view to determining the average size of the bricks. This problem will be discussed below in the section on Adobes, in connection with bricks in pyramid 15 as shown in figures 14 and 15.

HUACAS 17, 20, 10

Mound 17 (fig. 7) is north of 16 and is nearly as large as 16, but, surprisingly, its surface shows very few potsherds or adobe bricks. It seems to consist mostly of cobble stones (and gravel, from the not very distant bed of the Rimac), with some *tapia* (puddled adobe). There seemed much labor and little promise in excavation.¹ The axis is parallel to that of 16.

To the southeast of 16 is a smallish mound, Middendorf's 20, from which I was told had been taken most of the best pieces, which in 1925 were in the collection of Mr. Lott of the "Fundacho," which had built the highway by contract for the Government of Peru.

Somewhat southeast of the Aramburú cluster as a whole is Middendorf's no. 10 or "Temple of Rimac." This is about 125 by 60 paces at the top, which is bordered by a wall and is approached by a ramp from the end. It differs in appearance (fig. 8) from all the other huacas in the vicinity, looking much more recent, and is presumably of Late period.

HUACA 15

We come now to Huaca no. 15, where my successful excavation was made.

This is much smaller than 16 or 17, but it is nevertheless a huge pile. It consists of two parts: a main mass, which I called 15 and Jijón called III, and a northwestern extension, my 15N, Jijón's Huaca IV. The two are connected by a somewhat lower neck, as shown in my outline (fig. 9) and in Jijón's plan I. The two were evidently separate erections, though with their respective northwest and southeast corners nearly in contact, or perhaps touching. Both parts appear to have been rectangular edifices oriented with the cardinal directions. No. 15N was definitely larger from south to north than wide from west to east. No. 15 is more nearly square. Jijón's Plan I makes its main mass, the highest portion, somewhat longer south-north than broad west-east, but with a lower western terrace, or pair of them, included, the breadth exceeds the north-south length. With this, my sketch plan agrees.

I dug test holes in the top of 15, in a southwest terrace (specimens 169,217-232), and picked a little here and there, and also dug in 15N, but my main excavation was on the lower western terrace of 15; it was here that I reached the Proto-Lima cemetery. Most of the terraces slope and are not very plain, except in a large, over-all sort of way. The surface has

¹ Jijón (1949, pp. 148-151) did a little work in mound 17 (his "II") and gives a plan of it (no. XXX). He cites the dimensions as north-south length 284 meters; breadth at north 102 meters, at south 184 meters (the structure is T-shaped); height 25 meters.



FIG. 7. Pyramid 17 as seen from north end of pyramid 16.



FIG. 8. Pyramid 10 from southwest. Sharp slopes, corners, and ramp show this as more recent than pyramids 15, 16, and 17.

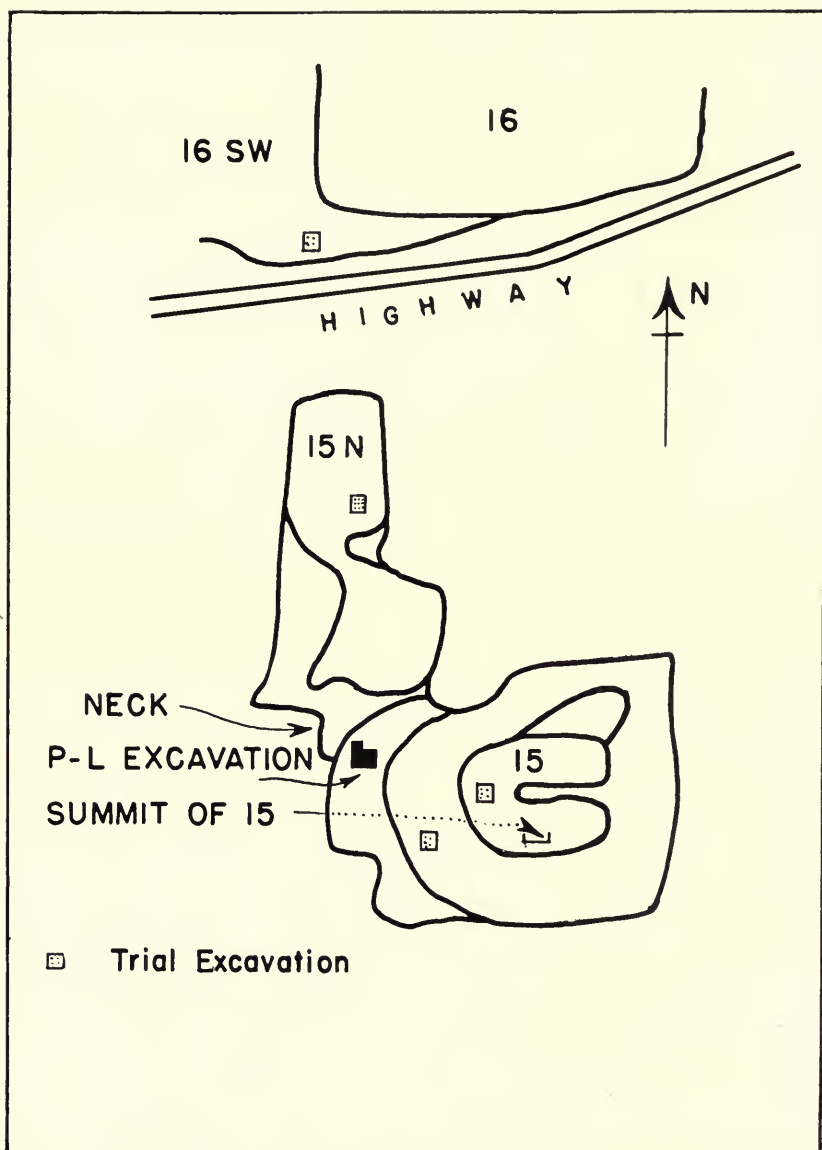


FIG. 9. Sketch plan of Maranga pyramid 15.

weathered in spite of the rainless climate and has slid or has been disturbed here and there and pulled down. I consider Jijón's Plan I as representing, in part, his reconstruction of the original form of mound 15 rather than an exact portrayal of its 1925 surface. Just so, my figure (fig. 2) of Huaca 16 is avowedly diagrammatic: it would have been very difficult to represent its wavy contours without a survey with instruments. The southern part of the upper western slope-face of 15 is shown in figure 10. It is evident how weathered and rounded the surface is: the vegetation is epiphytic *Tillandsia* plants. The workmen are in front of the excavation, which has been both sunk and driven under the terrace. Another terrace, farther south and somewhat higher, shows to the right. It is also evident that my main excavation was well below the middle of the huaca's total height: the very summit shows just to the left of the stakes in the photograph. The view faces somewhat south of east.

The view "southwestward"¹ from the top of Huaca 15 is shown in figure 11. In the foreground is the northwest corner of Area A of Midendorf's Huatica or Huadca (fig. 1), beyond which is the irrigated plain. In the distance are the resort La Punta, near Callao, and the hills of San Lorenzo Island.

Figure 12 sketches the plan of the main excavation when the first early burials were encountered, or just before.

Figure 13 gives both plan and elevation of the excavated part of this cemetery. This speaks for itself, especially when used in connection with the detailed list of Proto-Lima burials and the Proto-Lima interment summary. The east-west wall in the west part of this cemetery is shown also in figure 14.

The following three paragraphs on the mound structure at the early cemetery are from my notebooks:

"The Proto-Lima layer is marked by prominent streaks of straw all through it. For about a full meter the layer consists of soil, gravel, lumps and fragments of adobe, a few more or less cubical adobe bricks, considerable charcoal in fairly large pieces, occasionally charred sticks, and some general refuse, such as a few corn-cobs, a few lumps of guinea-pig dung mixed with earth, stick and cane fragments, bits of rope, some sherds, but only isolated shells. It is refuse, trash (*basura*), not soil surrounding previous interments. This refuse layer in which the Proto-Lima burials were made extends west to the north-south wall of adobes [see fig. 5], which I had to have pulled down to clear the burials—though this wall did not extend south all the way across the excavation. The layer containing the straw slopes slightly downward toward the east.

¹ Actually more nearly west-southwest (see footnote 1, p. 18, and Appendix III).



FIG. 10. Pyramid 15, looking up from Proto-Lima excavation to summit. Note rounded contours.



FIG. 11. Looking west-southwest from top of pyramid 15 over irrigated valley and San Lorenzo Island.

"Above the Proto-Lima and straw layer, the strata also slope toward the east until near the top, and consist of a fill of earth, stones, and adobes.

"The 4.5-meter (below datum point) level (of the lowest Proto-Lima grave 101) I estimate as being 5-6 meters above the surface of the sur-

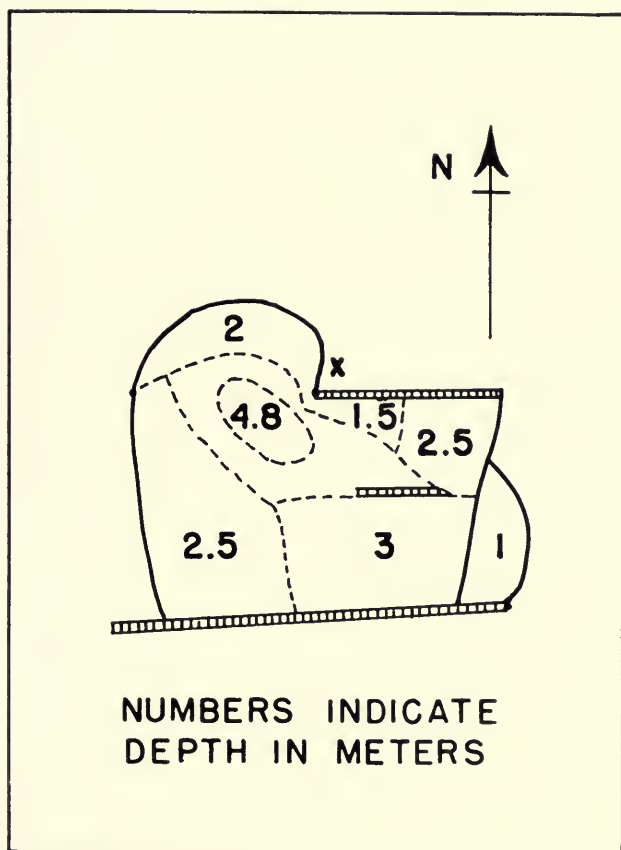


FIG. 12. Plan of Proto-Lima excavation in pyramid 15.

rounding plain. [This would put the datum point about 10 meters above the plain.]”¹

¹ According to Jijón (1949, Plan I), if his contours are assumed to be at 1-meter intervals, the west end of the undisturbed surface of his excavation lay at the 6-meter contour, the middle dropped to 0, the east end lay at nearly 7 meters; my excavation lies across contours 3 and 4. There are 30 contours in his plan from the plain to the peak of the huaca near its south end. The unstated contour interval is presumably close to a meter, since his Plan XXX of mound 17, which he says is 25 meters high, shows 28 contours.

ADOBES

I am appalled that I did not enter in my notebooks the size or a precise description of one of the sun-dried mud bricks or adobes, of which the Aramburú-Maranga huacas are so largely composed.¹ The only explanation I can give for the omission is that it was too obvious to take the elementary trouble, with millions of the bricks available. A year later, in Nazca Valley, I had become more observant or more careful and made a good many notations. But it is true that in Nazca the bricks vary much more strikingly in size and shape, even in single associations within the Nazca culture. The Aramburú adobes struck me as essentially uniform throughout the huacas I examined or dug in, including Juliana near Miraflores. Uhle was evidently under the same impression. Jijón does distinguish three types of adobes, though they are not too strikingly different.

I have at times called the Aramburú-Juliana bricks "cubical." Uhle's term "parallelopipedal" is more exact. He and I saw them all as hand-made; Jijón distinguishes hand-made and mold-made types.

I brought back to Chicago two adobes from excavation U on top of Huaca 16. These are numbered 169265. They contain deeply pressed finger-marks, with at least one clear thumb-print. Possibly it was on this account that I extracted and shipped them. Their dimensions are: (a), $17.5 \times 11.5 \times 5.5$ cm.; (b), $16 \times 10 \times 6$ cm. These measures correspond to volumes of about 1,100 and 950 cc.—about a liter.

Uhle (1910, p. 361) gives the size of the bricks as about $18 \times 12 \times 7$ cm. This would be equivalent to around 1,500 cc.²

Fortunately, so far as size is concerned, or at any rate proportions, it is possible to salvage something from photographs. I had taken a picture of my Proto-Lima excavation in 15, and another of the northwest corner of the top platform of 16 (the one that contained test excavations T and U), both of which showed courses of adobes *in situ*. These are shown as figures 14 and 5, respectively. I made tracings from these photographs (which are reproduced in figures 15 and 6), marked points in them, measured between

¹ At the Late period ruin of Armatambo just inland from Chorillos suburb, where I excavated before I went to Marques and Aramburú, I did note adobe sizes. The commoner type measured $5 \times 10 \times 12$ inches ($12 \times 25 \times 30$ cm.); another was longer, about $7 \times 10 \times 20$ or $8 \times 12 \times 22$ inches, corresponding to thicknesses of 18–20 cm., widths of 25–30 cm., and lengths of 50–55 cm.

² Muelle (1935, p. 137), in the walls of the tomb ($70 \times 70 \times 120$ cm. deep) he excavated at Nievería, found hand-made adobes 20 to 28 cm. long by 8 to 12 thick (corresponding to volumes from 1,300 to 4,000 cc.), so unequal in size and proportion that they did not maintain courses. His drawing (fig. 3) neatly shows this irregularity. Also, there are about 8 courses (7–9) in 120 cm., that is, 15 cm. to the course, which allows from 3 to 7 cm., average, for the mortar, against 8 to 10 cm. for the brick. This would be not far from the ratio in the Aramburú huacas.



FIG. 14. Adobe walls in cemetery in pyramid 15.

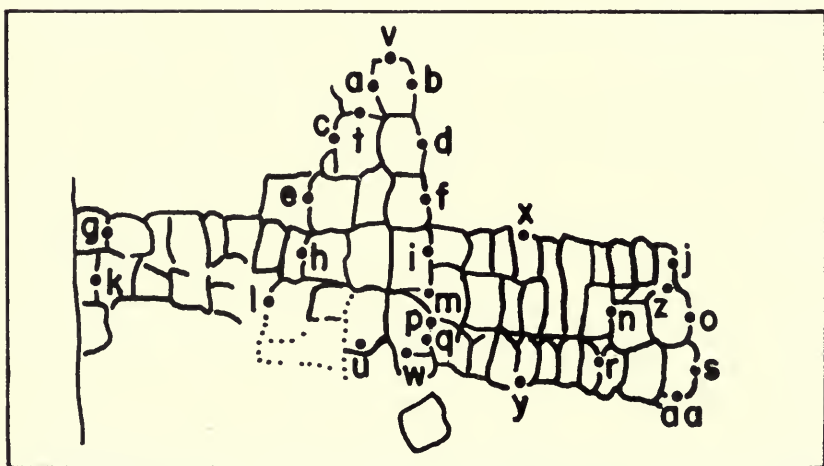


FIG. 15. Tracing of figure 14, marked for measurement of brick sizes.

these points to fractions of a millimeter, divided by the number of bricks or courses between points, and grouped the results according to whether the exposed faces of the bricks were their large, middle, or small sides. The several results for a side I averaged again, and then I multiplied all the mm. sizes in the pictures by 22, so that 5.0 mm. became 11 cm., or 7.25 mm. became 15.95 cm., or, rounded, 16 cm. This factor of 22 is arbitrary, but was selected on trial and error to yield dimensions similar and comparable to my two measured bricks and to Uhle's general statement. Even if the absolute figures are uncertain, the proportions hold. While this method would seem to depend on measurements made on a much reduced photograph, the measurements are of *series* of bricks and their averages are averaged, so that the mean results are perhaps more significant than the measurements of a few individual bricks. The detailed findings are given in Appendix I. The over-all, rounded means are: Proto-Lima excavation 15, $16 \times 12 \times 7 = 1,350$ cc.; excavation 16 U, $16 \times 10.3 \times 6 = 1,000$ cc.

The *range* of these two averaged computations, of the two bricks in Chicago, and of Uhle's statement are: maximum, $18 \times 12 \times 7$ cm. = 1,500 cc.; minimum, $16 \times 10 \times 5.5$ cm. = 950 cc.

It is evident that the results are in fairly close agreement. In familiar terms, we are dealing with a brick averaging nearer 7 than 6 inches the longest way, between 4 and 5 the next, and about 2.5 the short way. This comes to proportions of 3—, 2—, 1. As against this, our modern standard brick is $8 \times 4 \times 2$ inches (4, 2, 1 in proportion), with a volume of 64 cubic inches (1,050 cc.). The relative proportions might also be put this way: Aramburú 100:70:40 as against our 100:50:25. The difference is not too great, but as a result the Proto-Lima adobe impresses us as being less "like a brick" in shape than like a granite Belgian paving block or the older near-cubical paving stone of basalt.

Jijón finds a differentiation according to Proto-Lima sub-period:

Cajamarquilla-2.	$13.5 \times 13 \times 12$ cm.	wholly mold-made (2,100 cc.)
Cajamarquilla-1.	like Interlocking	
Interlocking.	$13 \times 10 \times 6.8$ cm.	mold-made, finished by hand (900 cc.)
Maranga-2.	$17.4 \times 9.7 \times 6.7$ cm.	hand-made (1,130 cc.)
Maranga-1.	Small, irregular	hand-made

What we have here is two developmental progressions: first, from hand-made to mold-made finished by hand to wholly mold-made; second, from a longish brick to a shortened one and then to an also thickened one.

I did not note either progression, but as I was not watching for one this is perhaps not surprising. However, my two adobes in Chicago from the top of the great Huaca 16 are obviously hand-made and are close in both size and proportion to Jijón's Maranga-2 type. My sizes and proportions

derived from the photographs also come closest to Jijón's Maranga-2 type, whether the pictures are of bricks from near the top of Huaca 16 or from deep in the interior of 15. Uhle's statement also accords with Jijón's Maranga-2 type.

I therefore wonder whether Jijón's Maranga-2 type adobe does not more or less represent, in absolute size, in proportion, and in the fact of being hand-made, the average brick of the Aramburú-Maranga huacas in general. In that case, his other measurements would perhaps chiefly represent variability of individual bricks (which the photographs indicate as being considerable) rather than period differences. Certainly, in view of the visible differences between adjacent bricks in size and shape, his selection of a single brick to represent all the adobes of a whole period is inadequate as a sample.

In any event, if Jijón's Cajamarquilla-2 specimen is really a type, if it is standard in the Proto-Lima level 5, is wholly mold-made, is very nearly a geometrically true cube, and is about twice the mass of the Maranga-2 form, it then departs so much from the prevailing Aramburú average that it ought to require no long search today—perhaps only inspection of the huacas—to establish the fact.

Several things are clear from the photographs (figs. 5, 14). First, adobes were both stood on end and set on edge. They are rarely if ever laid flat, as our bricks most often are, except where we vary for ornamental effect. There is no clear case of the flat position in either of my photographs or in Uhle's figure 13. Second, bricks are uneven *inter se* and are set differently in juxtaposition. The edge side and the flat side may face the same way side by side in the same wall. Third, there is no great attention to level. Note the slope of the courses *c-d* and *e-f* in the tracing (fig. 6) corresponding to photographic figure 5. This slope seems due to non-leveling of the top of the fill underlying this pier of brickwork.

Mortar is only reasonably thick, certainly much less abundant than between the odontiform, conical, spool-shaped, and semi-cylindrical bricks of the Nazca culture or the "double-fistful" Early Chinchá adobes.

Finally, the body of the great Proto-Lima huacas is an assemblage of laid adobe walls, piers, and cells; of puddled tapia adobe walls and pavements; and of fill of soil, cobbles, gravel, and refuse.

The Middle Cañete tombs and walls at Cerro del Oro are also built throughout of "cubical" hand-made adobes. The measures of six of these are: $10 \times 10 \times 7.5$ (750 cc.); $12 \times 10 \times 7.5$ (900 cc.); $11.5 \times 10 \times 9$ (1,035 cc.); $12.5 \times 12.5 \times 9$ (1,400 cc.); $14 \times 10 \times 9$ (1,260 cc.); $14 \times 14 \times 10$ (1,960 cc.). The averages for the three dimensions are 12.2, 11.1, 8.7 cm., with a volume of about 1,220 cc. I omit one brick

($18 \times 16 \times 12$ cm.) which is totally outside the series and may have served some particular function; its volume of 3,450 cc. is from two to five times greater than that of the others. The over-all size and volume of these Middle Cañete adobes is not very different from the Aramburú-Maranga ones; but they are more nearly cubical, on the basis of the samples measured. Half the time the medium dimension equals the long one, and the most it ever falls short, in the sample measured, is by 30 per cent. The short dimension at Cañete measures over two-thirds of the long, whereas at Maranga it falls between a half and a third. The proportions thus are about 3+, 3-, 2 for Middle Cañete as against 3-, 2-, 1 at Maranga; or 100:90:70 as against 100:70:40.

Proto-Lima Burials in Huaca 15

INTERMENT SUMMARY

I took out fifteen bodies from the section of Proto-Lima cemetery exposed. There may have been others below; we did not encounter any in a test hole carried a meter below one of the bodies.

These were all extended burials, nine oriented with head to the south and four to the north; the others were disassembled. Mostly they were lashed on frames, beds, or litters of sticks or canes. The ratio was six beds of cane to three of sticks. Figures 16–19 and 21 picture these beds. In figure 16, the end of an unexcavated bed projects from the soil and rubble near the pickax. The longitudinal canes numbered about ten per bed (as for body 109A, fig. 21), the transverse ones, about three (as also for 109A). A totora rope was lashed half a dozen or more times around frame and body. Usually the body was wrapped in a cloth. Sometimes (burials 104, 109A) the frame and body rested on a mud pavement or cake. The conditions of preservation were good, owing to the depth of the interments, and much skin, hair, and tissue were preserved.

Most of the corpses lay face downward, but three were on their backs, one on the right side, one or two on the left. Jijón's bodies also lay mostly prone or supine. At an upper level he found others in "*posición embrionaria y decúbito lateral*" (Jijón, 1949, pp. 27 ff.), a position which I did not encounter.

Figure 13 shows that there was a tendency for these mummies to occur in pairs: 106–110, 103–103A, 109–109A, all with the two bodies close and headed the same way.¹ The position suggests contemporaneous burial; but only 109–109A showed this indubitably. In this case the frame lay on a mud paving, and the principal body, 109A, was lashed to the frame. Body 109, a headless and armless cadaver, with much of its skin remaining, had then been laid on 109A. The bones of a third, partial body, 109B, were scattered, as shown in figure 20, among and mainly below the feet of 109A and 109. The photograph in figure 18 shows 109 and 109A as they were

¹ Bodies 107 and 108 had their heads close together but their conjunction may have been accidental as 107 was partly under a wall.

TABLE 1.—PROTO-LIMA INTERMENT SUMMARY

Burial no.	Direction of head	Position of body	Meters above no. 101	Frame	Cloth wrapping	Pottery, etc.
101	S	on face	...	canes	×	Plain pot by head
102	S	.....	0.2	.....	..
103	S	on face	0.7	canes	×	Plain pot between 103, 103A
103A	S	on left	0.7	canes	×	Rim-painted pot on canes
104	S	on face	0.3	sticks	×	Painted pot? Body on torta (<i>biso</i>)
105	N	on back	0.2	.....	×	Painted pot by head; bed under body
106	S	on back	0.5	sticks	..	
107	N	on right	0.4	none	..	Loose skeleton, head under wall
108	S	on face	0.4	canes	×	2.5 meters from mummy to surface
109	N	on face ¹	0.3	.....	..	Headless and armless
109A	N	on back ¹	0.3	canes	..	Main mummy, on torta; figure jar
109B	S	on face	0.2	.....	..	Disassembled partial body with 109-109A (fig. 20)
110	S	on face	0.3	sticks	×	Painted pot on hip
111	S	on face	0.3	.....	×	Plain pot above shoulder; plate among bones
112	..	on face (left)	0.8	canes	×	Sling around head

lifted out;¹ figure 19 shows 109A with 109 removed; and figure 21 shows the two laid down again, side by side, with another mummy (on the right) put alongside for comparison. I think there can be no doubt that we have in 109-109A a spouse or companion burial or sacrifice; one can hardly speak of "retainer burial," because the accompanying grave gifts were too poor for a prince or even a chief.

INVENTORY OF BURIALS

Body P-L 101:² Skull and long bones, face down, 169417, 169418; there was string wound in and out around the toes (as also of body 105). On the

¹ There is a mix-up as to position. My notebook sketches twice show both 109 and 109A with toes (= face) down; a listing of mummies in the same notebook reads "lying on face" for both 109 and 109A, with subsequent correction for 109 to "on back"; yet the photograph (fig. 21) plainly shows both bodies toes up. It is probable that this photograph was not taken until the two bodies had been disengaged, and that the headless, upper 109 was laid back on the litter but reversed. This photograph, indeed, was no. 7 of the film pack; that of 109A alone was no. 6.

² The bodies in the early, deep cemetery in pyramid 15 were numbered P-L 101 and up, P-L standing for "Proto-Lima." Late period bodies, buried less deeply, were designated with prefix 15 or 16 according to pyramid, sometimes with a direction initial like S or W, and were numbered from 1 up.



FIG. 16. Bottom of excavation "15," with end of a Proto-Lima litter burial.

left side of the body there were a spindle with convex cylindrical whorl, and scraps of yarn. On the right side there were a long-jointed cane spindle, 169419; a wide-lipped, unhandled pot, 169214 (fig. 22); a pottery handle and a rush knot, 169215a, b, in pot 169214; and a scrap of sheet metal, mainly copper, 169216.

Body P-L 102: Skull and mandible, 169384.

Body P-L 103: Body west of 103A, on face, on cane frame, in wrappings, field no. 1208, taken by Peruvian Government; foot of same, 169383.

Body P-L 103A: Skeleton, on face, on cane frame or litter, 169401; loin cloth, 169402a; plain cloth wrapping of body, 169402b. Near the head were a miniature jug, 169403a; a miniature jar, 169403b; a small reed basket, 169404a; a fragment of a net pouch, 169404b; a fragment of a wool(?) sling(?), 169404c; three "dolls" or cloth-wound crosses (not "diamond winding"), 169405a, b, c (fig. 33). A red pot with black and white lip, "containing corncobs" not identified, was on body 103A, 169406 (fig. 24). There was also a plain pot, fire blackened, between bodies 103 and 103A, field no. 1207, which was reserved by the Peruvian Government.

Body P-L 104: Skull, 169382; mandible, parts of skeleton, skin; on face, on frame of sticks, 169393; cloth wrapping of body, 169394; spindle, 40 cm., convex cylindrical whorl 1.7 cm. long, field no. 1192 (to Peruvian Government); two yarn-wound crosses, 169395a, b (fig. 32); a yarn-wound cross or doll on cane cradle or bed, three bits of blue rock (paint?) attached, 169396 (fig. 32); a calabash containing bits of the same blue rock, 169397; minute baskets, twined, plate-shaped, 169398a, jar-shaped, 169398b (fig. 30); a rim-painted pot, broken from pressure of soil but complete, field no. 1197 (to Peruvian Government); a Proto-Lima sherd painted with circles, and a white-on-black conical "leg" (handle) of bowl painted with chevrons, 169399. (The last two may be from grave 104 or from soil surrounding it.)

Body P-L 105: Head (with broken face), humeri, legs of body, lying on back, 169414; part of cloth from neck, 169415; split cane, probably for use in weaving, 169416; a painted pot by head, edge broken, 169389 (fig. 23). My notes contain the puzzling entry: "bed *under* body."



FIG. 17. Side view of Proto-Lima litter burial shown in figure 16, after additional excavation.

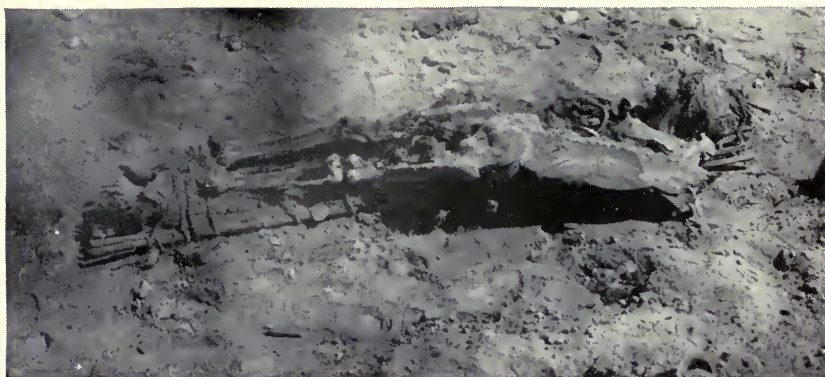


FIG. 18. Proto-Lima joint litter burial of bodies 109 and 109A.



FIG. 19. Body 109A after removal of body 109.

Body P-L 106: Head of body lying on back, on frame of sticks, 169409.

Body P-L 107: The head, 169386, lay under a wall; the skeleton was loose, that is, not attached to a frame; with it were cloth and net, 169388.

Body P-L 108: Skull and body, wrapped, on a soft bed of small canes and among stems, 169431.

Body P-L 109: Lower end of headless and armless body, 169427, laid, probably face down, on body 109A, 169428. Loose bones of a third person,

109B, possibly a sacrifice, more likely a reburial, 169423, lay around and under the feet of 109, and under a layer of canes covering both bodies, 109 as well as 109A. The loose bones (fig. 20) comprised the skull of an elderly person with long hair, all the long bones, some ribs, the sternum, a heel bone; missing were mandible, vertebrae, shoulder blades, hip, hands, feet.

Body P-L 109A: This is evidently the main body of the 109 group (figs. 18-21). The body, 169428, lay under the others, on its back, on a bed of ten

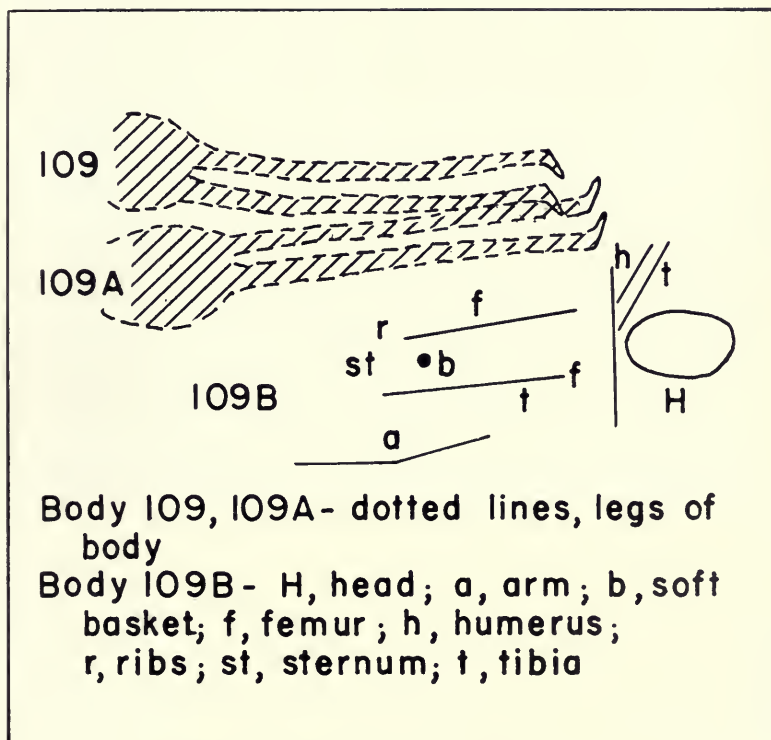


FIG. 20. Plan of bones of partial skeleton 109B.

long canes and three cross canes, lashed on with totora-reed rope, wrapped in the usual plain cotton blanket. After reaching the United States, the mummy was sacrificed to a blood-cell investigation, in the course of which the bed or litter, rope, and wrapping seem also to have been lost. There was a pavement (*piso*) of dried earth under the litter.

Associated were three artifacts: a flat round basket, 169424 (figs. 20 and 31); one of the cloth-wrapped crosses or "dolls," 169425 (fig. 33), in the straw that overlay bodies 109 and 109A; and, east of the head of body

109A, a reddish figure jar, 169426, modeled with spout and bridge. The jar was painted black and red on orange; the modeling showed the upper part of a human figure, which held before it a human head modeled in low relief (frontispiece and fig. 28).

Body P-L 109B: See description of body 109 above, and figure 20.



FIG. 21. Bodies 109 (left, headless), 109A, 106 laid out.

Body P-L 110: Body laid on face on a frame of sticks parallel to body 106, close to it, but 0.2 meter lower; the skull, the long bones, and parts of the skin were inventoried as 169410. The artifacts included a rim-painted pot, 169408 (fig. 25), broken by soil pressure, that had contained a small calabash. This pot rested on the frame of body 110 near its hip, and was nearly under the head of body 106. There were also a fleck of brown wool(?) and a fragment of a green parrot(?) feather, 169409; patterned cloth and yarn from the head, 169411, and plain cloth from the trunk of the body, 169412; and two long spindles with whorls and a thread-wound cane, 169413 (fig. 32).

Body P-L 111: This was a child, laid face down; the head, one arm, and two legs were preserved as 169422. At one shoulder was a plain reddish pot, 169421 (fig. 26), unhandled, like the others; by the preserved arm was a spindle, 169429; and among the bones lay a small reddish pottery plate or bowl, 169430 (fig. 27).

Body P-L 112: Body 112, no. 169432, lay on its face on a frame of canes, somewhat east of the others, in the higher part of the huaca, and a bit higher in absolute level. There was a sling around the skull.

Unidentified Proto-Lima body: One skeleton in the Proto-Lima level was taken up by my workmen during my absence and, though I assigned it the body number 104A, its identification is uncertain. It may be 169385. With it were cloth and rope, 169387.

Artifacts from Proto-Lima layer, not indubitably associated with burials:

- 169381 Antler, probably for digging, polished by use; between 3.5–4.5 meters deep.
- 169390 Charred wood, charcoal, maize, cobs (fig. 34), string, etc.
- 169391 Parcel of Proto-Lima sherds.
- 169392 Two black sherds, a red pottery bent-tube fragment (stirrup mouth?), a girdle with pecten shell on string, a cord with a small shell sewn on; not from one spot, perhaps not all from same level.
- 169420 Nine sherds from a pit dug 1 meter below P-L bodies 103 and 106.

The Culture of the Proto-Lima Graves

POTTERY

Nine whole or restorable pottery vessels were found in the Proto-Lima graves. Seven of these were more or less globular pots, one was a shallow bowl, and one a modeled jar with head and spout. Three of the pots and the bowl were plain, four pots showed some painting, and the jar was painted as well as modeled. One painted and one plain pot were taken by the Peruvian Government.

The largest pot (fig. 22), no. 169214 from body P-L 101, stands about 170 mm. high and measures from 215 to 219 mm. across the opening and a few millimeters less through the body, where the greatest diameter comes about 70 to 75 mm. above the base. The base is slightly concave or has been pushed upward. The neck diameter averages somewhere between 170 and 180 mm., or about 40 mm. less than the diameter of the opening. The distance from the lip edge to the narrowest point of the neck is about 55 to 58 mm., and the flare of the neck makes an angle of perhaps 120° with the shoulder of the body. I estimate the thickness of the ware as about 10 mm. Its color is a light brick red verging on orange. There are several areas that are blackish, either from overfiring or from incomplete oxidation. The outside is smoothed but not very carefully, and it has not been burnished, as is clear from the horizontal smoothing marks still showing. The inner side of the lip is smoothed to about the same degree as the outside of the vessel. The inner side of the belly of the pot shows horizontal smoothing by the fingers or by means of a rag, but this smoothing is imperfect: here and there ridges remain, and several depressions, one of them at least 3 mm. deep, have not been filled in. All in all, the ware is technically competent but in no sense high grade.

A similar pot (fig. 23), 169389, from body P-L 105, is somewhat smaller. The lip is about 168 mm. high, and the maximum diameter of the body is between 175 and 180 mm. The mouth is incomplete so its diameter cannot be given, but I would estimate it as at least 20 mm. less than the diameter of the body. The distance from lip to neck is 31 to 33 mm. The lip flares less than in the preceding specimen, its angle with the shoulder of the body being about 135° . The thickness of the ware averages about 5 mm., increasing to around 6 or perhaps 7 mm. at the turn of the neck and then slowly

thinning back to 5 mm. at a point 10 mm. down from the lip. This vessel shows horizontal marks of smoothing or wiping over its body. The bottom has also been wiped, all in one direction. This wiping or burnishing covered about two-thirds of the outer surface, leaving narrow grooves of slightly rough surface between the irregular bands of smoothing. These rougher bands are somewhat grayish as compared with the orange brick color of the

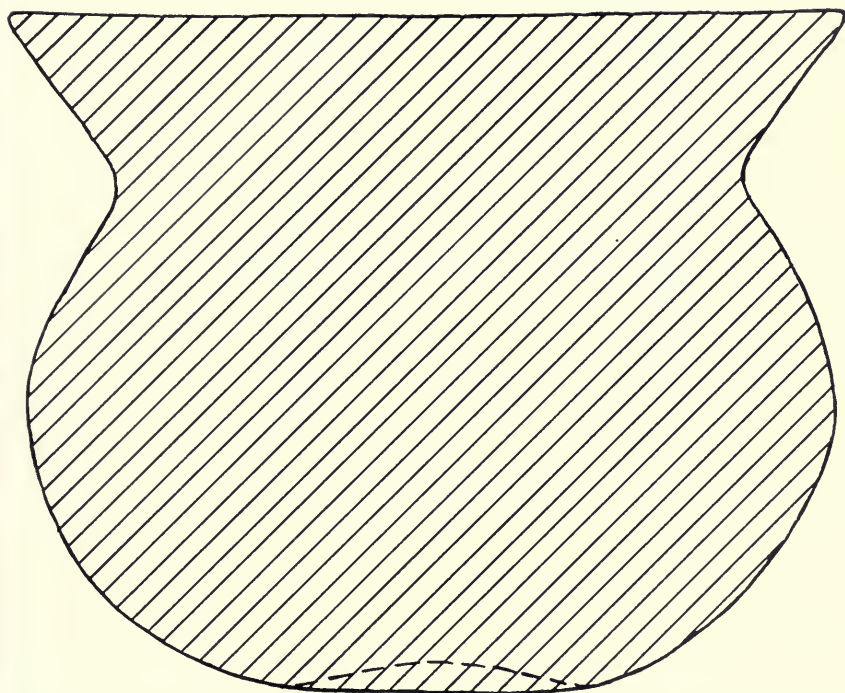


FIG. 22. Largest pot found with a Proto-Lima burial (101); 174 mm. high; no. 169214; $\times 0.5$.

smoothed stripes. This grayish or whitish color may be due to subsequent adhesion of dirt in the roughened areas, since wetting of the surface makes the rough striations come out darker instead of lighter in color than the smoothed orange. The firing was not quite even, since parts of the surface came out yellowish rather than orange. The inner side of the lip has been smoothed without showing the striations of the outside of the vessel. The inner side of the belly is smoothed, much like 169214.

On this pot, painting covers the whole outer side of the neck, and there are five vertical stripes that reach not quite to the bottom. The neck has been painted over in a "black" (actually, a dark brown) band. On the

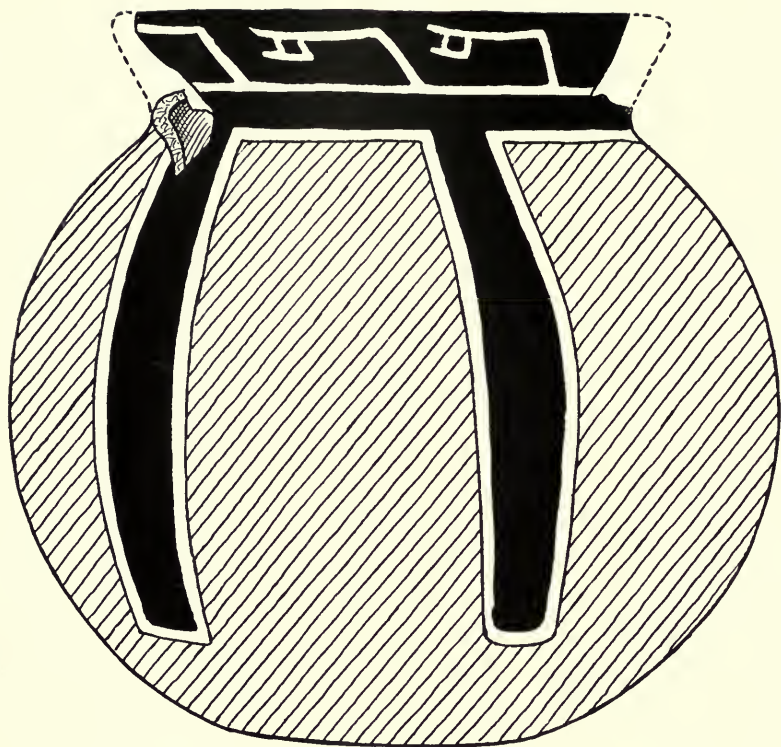


FIG. 23. Painted pot, no. 169389, found with burial 105; $\times 0.6$.

lower third of the band is a horizontal white stripe or line, from which arises, nine or ten times repeated, a white figure consisting of a conventionalized long neck with a head at the end. The white appears to have been overpainted on the dark brown. The lower edge of the dark neck band is also bordered by a white stripe, which is broken in five places to permit a downward extension of a "black" bar, tapering slightly toward the base. These five vertical bars are about 115 to 120 mm. long, following the curve of the vessel. They are also bordered by white stripes. All over the pot the white lines run about 2 or 3 mm. in width, sometimes reaching 4 mm. The white paint was apparently a fairly thick mixture, because the white, while slightly muddy, shows full-bodied; it is not thin and translucent as in so much Proto-Lima overpainting.

Pot number 169406 (fig. 24, body P-L 103A) also shows black flecking on its red brick surface. The dimensions are: height from base to lip 145 mm.; diameter of mouth 110 mm.; maximum diameter of pot around 190

mm. at a height of about 73 mm. The shoulder flares more than in the last piece; the neck is short and nearly vertical and its angle with the shoulder is about 135° ; the width or height of the neck is around 15 mm. The ware is definitely more reddish in color than the last piece; in fact, it might be characterized as a good brick red with two large blackish flecks on one side. It shows horizontal striations caused by smoothing, with thin, rougher striae between. The inside of the neck is similarly smoothed, and the inside of the body is more roughly smoothed by finger or rag wiping, especially in its upper half. The bottom is flat. The painting consists of a black band on the outer side of the neck, lapping a bit over on to the shoulder and varying from 16 to 22 mm. wide. On this band were five or perhaps six heads and necks in quite thin, faint white overpainting, scarcely discernible. The

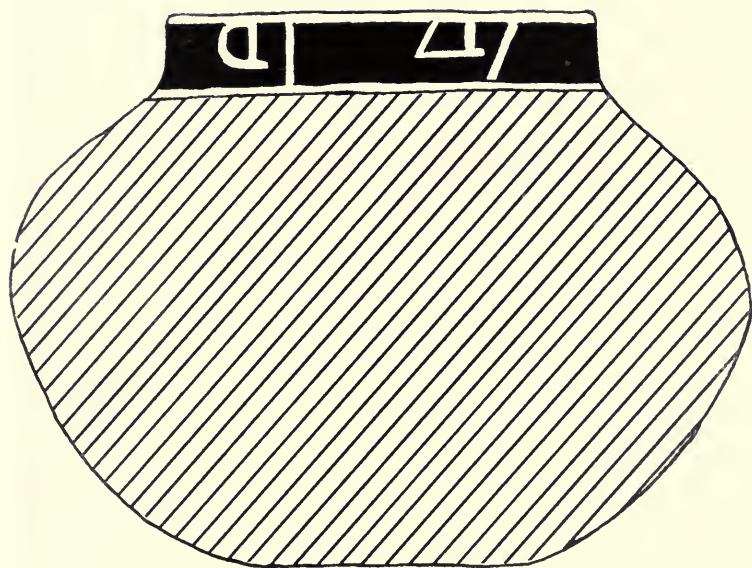


FIG. 24. Painted pot, no. 169406, found with burial 103A; $\times 0.5$.

heads are much as in the last specimen, but the necks are merely short vertical strokes.

Number 169408 (fig. 25), found with body 110, is a rim-painted, deepish incurved bowl. As I have not seen it since it was put together from pieces, I am describing it from the drawing. It is about 110 mm. high, 185 mm. in maximum diameter, and about 130 mm. across the opening. It bears a black-and-white band of design painted on the reddish surface, about 20 mm. wide measured from the rim down. Figure 25 shows this as a genuine

though simple interlocking pattern. The unit consists of two isosceles triangles, each containing a small spot-like black triangle and connected by a diagonal bar. This unit is repeated alternately in white and red. The opposite-pointing triangles or "heads-with-eye" genuinely interlock or complement each other to fill completely a continuous band of design. Of all the material found in graves in the cemetery, this vessel is the only one that is strictly interlocking in design, although two jars (fig. 29) found nearby also have an interlocking pattern which is even more complicated, in that the pattern fills whole panels instead of a rim-band.

Number 169421 (fig. 26) is a salmon-pink, unpainted pot from body 111. It is about 110 mm. in height and 145 mm. in diameter. The mouth varies from 110 to 114 mm. in diameter; the lip is about 14 mm. wide and it makes an angle of 135° to 140° with the shoulder. The bottom is flat. The paste is fine-grained without grit temper visible to the naked eye, and about 4 mm. thick. Striations produced by horizontal smoothing are visible on the outer lip and shoulder, also on the inner lip and interior of the body.

Number 169430 (fig. 27) is a small bowl or plate of similar unpainted ware from the same body (P-L 111) as the last. It is quite irregular in shape, as if it had bent in handling while the clay was still soft. The maximum diameter, which is at the lip, is 121 mm., the minimum only 113 mm. Similarly, the height of the lip varies from 28 to 32 mm. The firing is less uneven than in the preceding unpainted pot. There appears to have been some degree of polishing, since the usual striations and rubbing marks are lacking.

The effigy jar 169426, found broken at the head of body 109A, is shown restored (frontispiece) and in side view (fig. 28). The jar is 170 mm. high. It is a smoothed and slightly polished orange ware, painted in dark red and black. The red areas are well polished. The following areas are red: the larger panels in the headband, the eyebrows, the lips, the beads of the lower necklace, the eyebrows of the lower face (trophy head), the two large half-circles on the sides, the border (not dots) of chevrons or V's on the side at the rear, and the spout. All other painted design is in black. The illustrations make further description unnecessary. This is by far the most elaborate Proto-Lima ceramic piece that I excavated. Uhle's nearest counterpart, found in his grave 2 at Nievería, is shown by Gayton (1927, pl. 96, *i*), but its body is red, not orange, and carries on each side a panel of interlocking patterns similar to those of my figure 29, except that in Uhle's jar the paneled pattern is red, white, and black instead of two-color.

With body 103A were found a "toy jug and jar"—the "jug" meaning a handled jar—which I numbered 1203a, b. One or both of these two tiny pieces received the museum number 169403, or were designated to receive

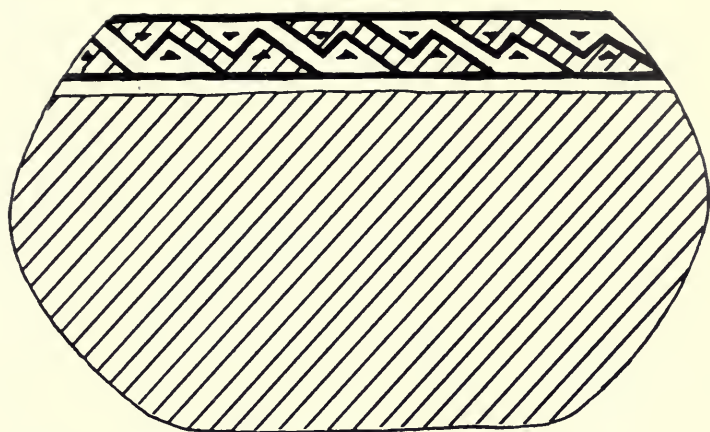


FIG. 25. Painted bowl-pot, no. 169408, found with burial 110; $\times 0.5$.

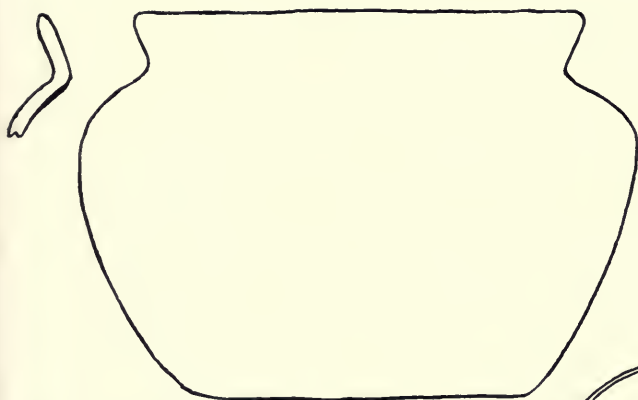


FIG. 26. Plain pot, no. 169421, found with body 111; $\times 0.5$.

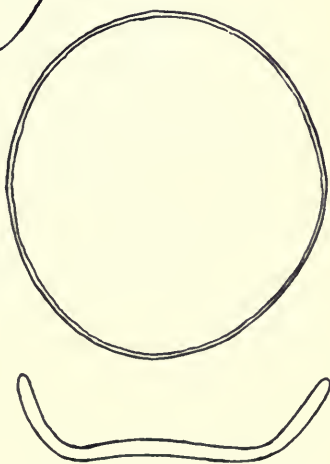


FIG. 27. Plain low bowl, no. 169430, found with body 111; $\times 0.4$.



FIG. 28. Painted and modeled jar, no. 169426, found with body 109A (see frontispiece for front view); $\times 0.7$.

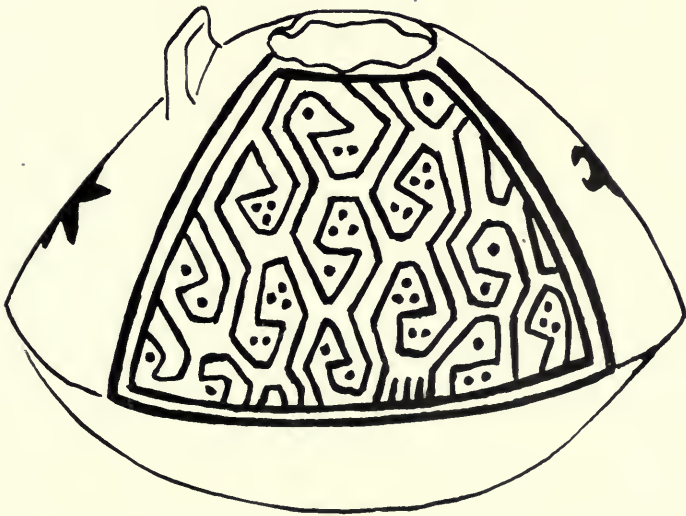


FIG. 29. Painted jars from west of Proto-Lima excavation in pyramid 15; $\times 0.6$.

it; but they have not been found, perhaps because some of my field-numbered specimens 1202-1204 from body 103A remained in Peru as the property of the Government. As I remember these vessels they were unpainted and of the general character of the toy pots I found with body 1 at subsite A at Bajada Balta in Miraflores, as described below and shown in figure 80. This latter lot of three also includes a two-handled pot and a jar without handles. The two sets of miniatures at any rate serve to tie the Maranga 15 Proto-Lima cemetery and the shallow Bajada Balta burials together as similar in culture and presumably coeval.

Other Vessels from the Cemetery: Two orange jars with strap-handle from shoulder to neck (one broken off) are shown in figure 29. They are from unauthorized caving of the bank of my Proto-Lima cemetery after I left it and before Jijón began working near it. I would estimate that they came from 4 or 5 meters below the original surface, and were offerings in a grave (or two) not far from my graves. The vessels were shown me by the finders and I was able to examine and sketch them. The whole piece was 155 mm. high and 120 mm. in diameter; the design was dull red on orange buff. The other one was 98 mm. to the broken edge of the neck, and 151 mm. across. Its colors were the same, except that the two outer lines of the panel frame were black. The designs are similar and related, except that the one on the broken jar retains somewhat more of the full interlocking fish (or snake) pattern. The paste was smooth and fine. As regards technological quality, both pieces belong with the head-and-spout jar of figure 28; in interlocking pattern, they relate with the rim band of the pot shown in figure 25.

WHORLS AND SPINDLES

Spindles are represented by three fragments, numbers 169419a, b, c. Two of the three are fragmentary. The one designated as *a* consists of a hardwood shaft 247 mm. long and 5 mm. in diameter. Over this is slipped a 20 mm. whorl or button apparently of soft, unsmoothed pottery. This is a bulging cylinder some 13 mm. in greatest diameter. It is situated somewhat under 80 and 150 mm. respectively from the butt and tip ends, and is held in place by having been slipped over a wisp of cotton. The butt end was found jammed very tightly into a piece of cane about 50 mm. long and 9 mm. in diameter, the pith of which probably had been perforated by the spindle shaft itself, since the fit is very snug. Moreover, there is a yellow, cement-like substance adhering to the covered part of the shaft. The cane is evidently a cover to protect the point of the butt.

The two other spindles are much smaller and presumably never carried a whorl or button. The one marked *b* is a plain, hardwood shaft 88 mm.

long, with a maximum diameter of barely 4 mm. The original length may have been a few millimeters longer, since the tip is broken off. Something like a third of the shaft was protected by a piece of cane 70 mm. long and 88 or 99 mm. in diameter. The inserted end of the shaft shows traces of a yellowish cement like that in *a*. The tip end of the spindle is rounded, not pointed.

The third item is a bit over 90 mm. long and only about 3 mm. in diameter. Half its length was inserted in a reed tapering from 7 mm. in diameter to 5 mm., and having a length of as much as 162 mm., with the distal end broken off at that. Both this and the preceding pieces were inserted firmly into the reed cover but not bound to it, since they slid out readily.

CLOTH

The textiles found in the Middle Lima cemetery have been analyzed by Dwight T. Wallace, whose results are presented in Appendix II. I am grateful for this careful and illuminating study, whose authenticity is much greater than I would have been able to contribute.

BASKETRY

While basketry generally forms a very minute portion of grave offerings in Peru, its frequency was relatively high in the Proto-Lima graves.

Grave 104 contained two small twined baskets, 169398a, b (fig. 30). 169398a is nearly complete but is torn at one side. It is also somewhat distorted by pressure. The base measures about 65 to 70 mm. in diameter; the mouth varies in its present condition between 20 and 25 mm.; the present height is about 40 mm. but may originally have been nearer 50 mm. Warps are of splints, presumably of totora. Where the basket is torn near its bottom edge, in other words where the warps were turned upward at an angle of more than 90°, some of the warps are double, but this appears to have been due to the insertion of additional warps as the diameter of the base increased. The wefts seem also to be totora reed but either are narrower strips of this or are taken from thinner reeds. Toward the top of the basket, where it narrows, two warps are gathered together into one hitch of twining, so that in one course two twists of the weft extend about 13 mm., whereas in the next course above a single twist extends 11.5 mm., and in the third course is reduced to 11 mm., in the fourth to 10.5 mm., in the eighth to 8 mm., and in the twelfth to 6 mm. In another case, two adjacent twists in the same weft course extend for 13 mm. as against 12 mm. for a single stitch in the next course, 9 mm. in the fourth, and 7 mm. in the sixth.



FIG. 30. Small twined baskets, no. 169398a, b, found with body 104; $\times 0.7$.

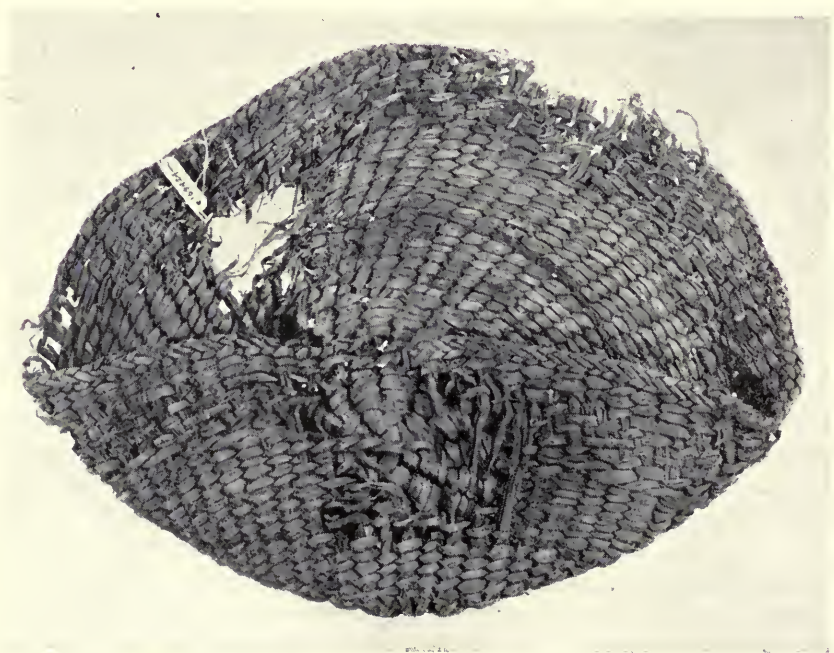


FIG. 31. Patterned twined basket, no. 169424, found with body 109A; $\times 0.4$.

The height of weft courses averages 3 to 3.5 mm., but is irregular: in one case nine courses rise 25 mm.; in another case, ten rise 35 mm. The upper two or three courses are without warps, these having turned inward, where they project a few millimeters. The warpless wefts are then each turned downward to be braided in with the warp ends.

No. 169398b seems to be the slightly convex lid of a twined basket. Some of the edge has been preserved, so that the diameter can be estimated as having been about 70 mm. As in the jar-shaped basket just described, the warp ends are turned back inward about two courses of weft before the edge is reached. The material is in every way similar to that in the preceding piece. The number of warp splints cannot be counted, because part of the edge has been lost and because additional warps have been inserted as far out as only 5 courses of weft from the edge. I estimate, however, that there may have been about 24 warps at the periphery. The number of warps present at the start of the basket also cannot be worked out without cutting it to pieces. There has been a good deal of pulling-around of the warps as the weft was drawn, especially near the beginning, so that the effect of the warps near the center is that of rotating spirals. I judge that the direction of the twine was counterclockwise as this convex basket lid is seen from the top. I am less certain about the jar-shaped piece, *a*.

From grave 109-109A comes a much larger piece of twining, apparently also of totora, but done in coarser stitches (fig. 31). This seems to have been a flat plate or circular mat, but as part of it was folded over on itself and cannot now be unfolded without breaking it, the shape may have been that of a shallow bowl rather than a flat mat. The diameter along the doubling is in the neighborhood of 240 mm. The basket seems to have been started over two pairs of crossed warps which consisted of fairly thick reeds or perhaps bundles of totora fiber. The number of courses of twining is about 36, plus three more of braided weft only. The sixteenth course and again the twenty-ninth are in three-strand twine, two strands passing over each warp on the under side and one on the upper, no doubt for additional strength. The twenty-first weft course is blackish instead of light brown or yellowish, as are the thirtieth to thirty-third courses. This made a narrow midway ring of decoration and a wider one just inside the periphery of the basket. The black weft of the narrow circle (twenty-first course) seems to be like the adjoining plain weft, except in color. On the other hand, the black weft in the outer and wider band seems thin and flat, and wherever there has been wear, or the basket has been broken, uncolored weft tends to appear as well as black. Sometimes the effect is as if the black and the plain weft had been twined in together, or perhaps the dark had been inserted in the plain in-and-out weft without twisting. In other spots apparently a thin

black weft was carried as an overlay or facing over the regular plain weft; or the black weft facing may have been inserted like a float carried over two or more warps, after which thin, flat fibers were carried radially across it, usually between the warps included under one float. These thin fibers may have been inserted superstructurally, or they may be small portions of the fibrous warp that were teased out from it, as the weft reached it, to be carried over instead of under the black float.

The progress of the twining is counterclockwise as the basket is seen from the upper or finished side.

These details are given because relatively little Peruvian basketry has been described precisely; they may be of service to the student of comparative technology.

Jijón (1949) describes baskets and mats on his pages 445–451 and illustrates them on plates 87–92. Of these, six seem indubitably Proto-Lima: plates 88, nos. 1–4; 89, no. 1; 91, no. 3. They are all from refuse layer *f* of Huaca 15—not from graves—which Jijón assigns to his third construction period. They are all, like my foregoing pieces, done in twining (“*técnica espiral*”), and resemble these closely.

Jijón also classes as of Proto-Lima period his plates 89, nos. 2, 3 (pp. 446–447, figs. 2, 3, correctly; p. 450, figs. 3, 3 *sic*) and 91, no. 2; and figure 21 on page 40. These are respectively, it would seem, twilled (in part); flat-splint checker weave; twining; simple in-and-out one-weft wicker. They are from burials with the body “laid on its side in embryo position” or seated—which I would regard as late or transitional Proto-Lima, if not from a still later period.

His remaining illustrated baskets and mats are presumably Late period.

RAG DOLLS AND CROSSES

Quite characteristic of the Proto-Lima graves, and found also by Jijón in his excavations, are rag dolls and rag crosses. These seem to constitute the more elaborate and the simpler variants of one type, although it must be admitted that if only the simple forms had been discovered one would hardly think of calling them dolls.

All the pieces have in common at least one length of cane or stick, a crossbar, and, attached to these, soft, loose-woven cotton cloth, either white or brown or both.

No. 169396 (fig. 32, left), from body 104, is unquestionably either a doll on a cradleboard or a doll-like representation of a corpse on its burial litter. The litter consists of four sticks of fibrous wood about 175 mm. long and 8 to 10 mm. in diameter. The wood seems endogenous and has a distinct bark with leaf scars, and is thus rather different in appearance from the

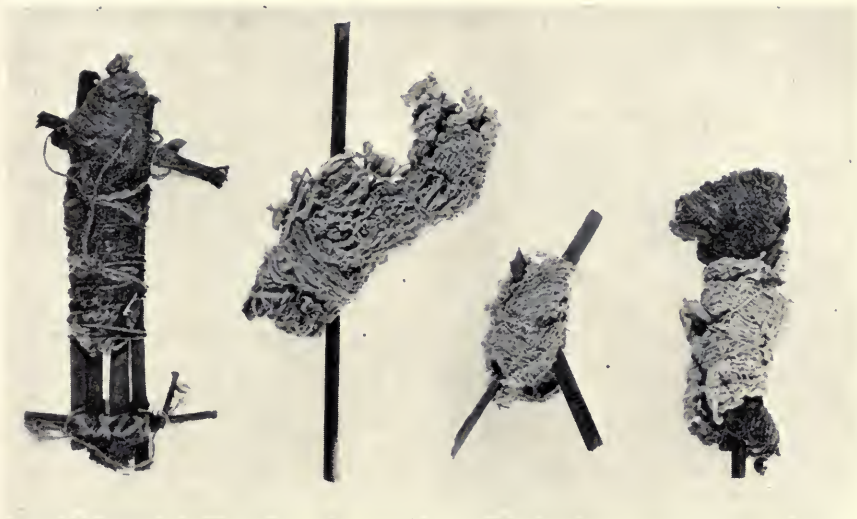


FIG. 32. Cane and cloth "dolls" (left, right) and crosses (center), nos. 169396, 169395a, b, 169413; $\times 0.3$.

smooth-surfaced lengths of cane in most of the other specimens. It will be remembered that mummies were sometimes lashed to litters made of sticks or sometimes of canes. There is a somewhat thinner crosspiece about 90 mm. long lashed to the upper surface of the litter about 25 mm. below the top; and close to the bottom there are two still smaller sticks treated as a single crossbar. The lashing was done with flat strands; fibrous, seemingly loose, 2-ply for the top lashing, and single-ply for the bottom.

The cloth "doll" on the litter has an average length of 125–130 mm. and a width of 30–40 mm. Its outer layer consists of very loose-weave, open-mesh, brown cotton cloth, through which similar wrappings of white cotton are visible. The head or hair of the image, above the crossbar, is indicated by four or five wrappings of fiber, part of the length being braided and part loose and just bound down. At the top of the head a bit of blue stone about $15 \times 11 \times 7$ mm. is tied on with fiber. Two similar bits of blue stone are tied to the upper crossarm where this comes out from the length of the litter. Small pieces of this blue stone were found elsewhere in the graves. The cloth body of the doll was evidently first lashed together as a unit with soft white cotton cord and was then attached to the litter by means of much thinner 2-ply cotton cord.

In the same grave, P-L 104, were found two cane-and-cloth "crosses," 169395a, b, broken and incomplete as shown (fig. 32, center). In this case, the stiff material is cane or smooth reed. The longer arm of 169395a meas-

ures 135 mm. One end is cut, and the other has been damaged but may also represent the original cutting off. The crosspiece is now about 100 mm. long but appears broken off and seems to have been twisted to a 45° angle to the upright after burial. The very wide-spaced, open-mesh cloth is wound around the junction of these two stiffer pieces, but appears also to be incomplete. There is no sign of shaping into any semblance of a human effigy. No. 169395b is similar but longer.

Piece 169413 (fig. 32, right), from grave 110, is wound on to a piece of slight and quite smooth reed not quite 140 mm. long and about 6 mm. in diameter. The crosspiece, which is attached as closely as possible to the upper end, is not quite 50 mm. in length and is of the same material. The cuts on both pieces are clean and at right angles. The "effigy" is of the usual open-mesh brown cloth in a strip about 50 mm. wide, folded over the crossbar and back down behind; over the middle of this is then wrapped and bound a length of similar white cloth. The crossarm is not visible except on side view. The somewhat vague resemblance to the indubitable doll first described above is enhanced by the fact that attached to the crossbar but covered over by the brown cloth, is a bit of blue rock.

No. 169425, from P-L 109-109A, is generally similar to the last (see fig. 33, right). The material is again slight, smooth reed: a single piece 180 mm. long, with a crossbar nearly 120 mm., both about 8 to 9 mm. in diameter; the crossbar has, however, been twisted to an angle and has slid off center. The ends have been cut off hastily and at an angle. The body of the "doll" is again of brown cotton cloth, over the lower part of which has been bound a bit of white. The final lashing together is with soft, white, 2-ply cotton string. This time there is no sign of a blue stone.

With mummy 103A there were three cane crosses, no. 169405a, b, c. In the largest, not illustrated, the canes are about 217 mm. and 106 mm. long and about 6 mm. in diameter. The crossbar is again off center and twisted from the perpendicular. The cloth is white and seems lashed to the crossbar rather than to the long cane. Not far from the junction of the two canes there is a small perforated bead of hard seed or stone(?), buried in the cloth lashings.

The second cross in this number, also not illustrated, is somewhat shorter and thicker. The lengths are 185 mm. and 108 mm.; the diameters of the cane are 9 to 10 mm.; the cuts are ragged. There is a little brown cloth next to the long cane, but this is mainly covered by white. There are remnants of three or four turns of 3-strand fiber braid above the crossbar, suggestive of the fiber braid indicating the hair or head in the first doll described.

The third cross in the lot, 169405a (fig. 33, left), is much the smallest. The long cane measures 110 mm., the crosspiece not quite 80 mm., the



FIG. 33. Cane and cloth crosses, nos. 169405a, 169425, found with bodies 103A, 109A; \times 0.6.

diameter 6 to 7 mm. The crossbar has remained centered and nearly at right angles. The cloth lashing is thinner than in the others; in fact, it consists of a crepe veiling. It has been stretched over the crosspiece as well as along the main axis, but there is some bunching below the crossarm definitely suggestive of a body. There is also a small, dark gray, perforated stone bead attached to the cloth wrapping and about two-thirds emerged from it, as shown in the figure under the "armpit."

Jijón (1949) found "muñecos de trapo" (rag dolls) with his bodies 170-173 and 186. They are illustrated in his plate 104, extreme right, and described on page 472.

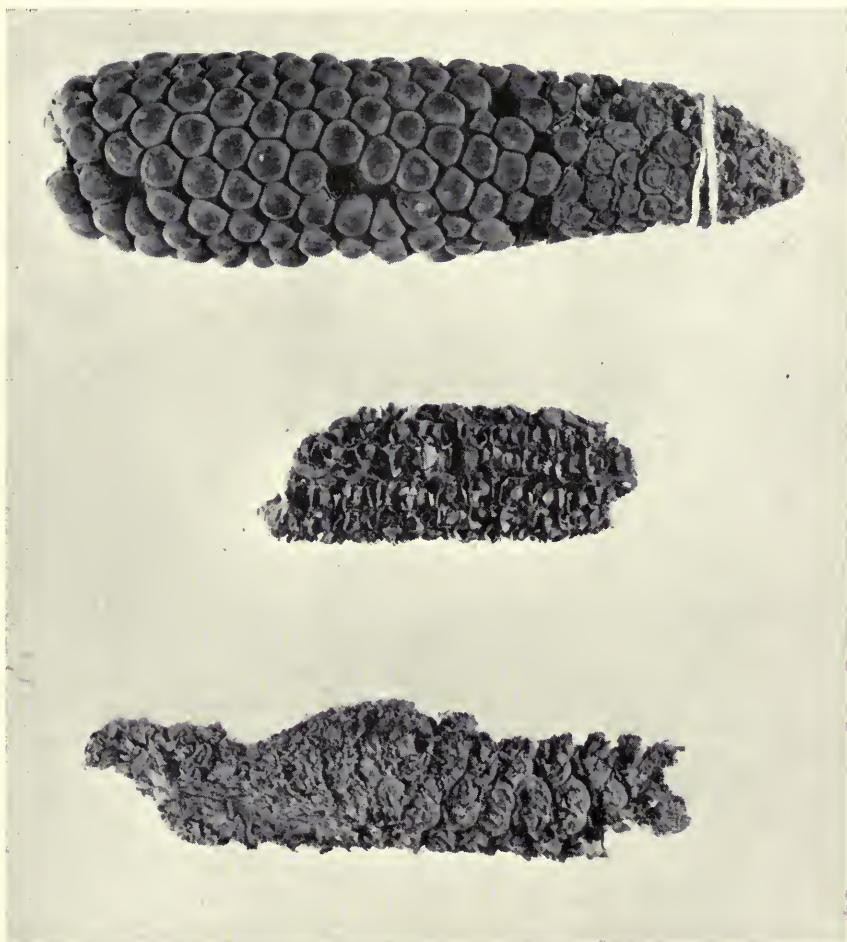


FIG. 34. Maize ear and cobs, no. 169390, found near burial 105; \times 1.1.

MAIZE

Near grave P-L 105, in the Proto-Lima layer at a depth of 3.5 to 4.5 meters, there were found, in association with wood, charcoal, string, etc., an ear of maize and two cobs, no. 169390 (fig. 34). The length of the ear is 93 mm., the maximum diameter about 28. This maximum diameter is attained about 25 mm. from the butt. In spite of the small size of the ear, there are sixteen rows of kernels. These are now reddish-brown, but the reddish tinge is definite enough to make me believe that the present hue is not due merely to the browning of age but that the kernels were originally

more or less red. The number of kernels per row is about 20, with the upper 10 to 13 mm. of the cob now bare of kernels. There are shallow pits suggesting that minute kernels originally continued to the very end of the cob. The butt, on the other hand, is not prominent. It constricts rather strongly, with the kernels following around inward, until the diameter of the kernelless end of the butt is only in the neighborhood of 10 mm., as compared with the maximum diameter of the ear (including kernels) of 28 mm. The total number of kernels on the ear must have been between 300 and 350. They are crowded together something like cells in a honeycomb. As a matter of fact, nearly all of the kernels in the middle and lower part of the ear are actually hexagonal, or in a good many cases pentagonal.

The two cobs found with this ear are very incomplete. Of the larger one, about 75 mm. of length remain. The cob has been cut into on one side and scraped or sliced on the opposite; elsewhere the original surface is broken away. I would not venture to estimate the number of rows, but, it seems to me, they could not have reached sixteen as in the complete ear. The sacs or spaces for kernels are somewhat larger than the kernels in the full ear, but the diameter readings of 18 and 19 mm. which I obtained in two different parts of the cob are probably pretty close to the original maximum. This would hardly allow of a very long cob. The portion preserved gives relatively little suggestion of taper.

The second cob is less mutilated but only about 45 mm. long. The diameter is from 16 to 18 mm. without much indication of taper. The inner 5 mm. or so are hollow, that is, a tube extends the length of the fragment. The number of kernel rows on this cob is 12, with a diameter of 17 to 18 mm. and a circumference of 53 to 57 mm. The width of each row on the cob thus is just about 4.5 mm.

Jijón (1949, p. 95) found maize and beans (*Phaseolus lunatus* and *P. vulgaris*) in his rubbish layer "n," which belongs to the first "fase constructiva" of Huaca 15 and is therefore early Proto-Lima. He describes eight of the ears and illustrates them (Jijón, p. 476 and pl. 110, right). They are relatively slender and measure from 45 to 98 mm. in length, with a mean of 78 mm. He speaks of 11 to 12 kernels (granos) in a "horizontal row" (hilera), and 10 to 23 in a vertical row. I assume that he visualizes the ear as it grows, upright on end, and that, in North American terminology, his Proto-Lima ears had 11 or 12 rows and that the rows contained from 10 to 23 kernels. The photographs on the plate are too small, and their screening is too fuzzy, for reliable counting even under a magnifying glass; but 10 to 23 kernels in a row seems about right. The type is certainly generally similar to that of my specimens.

By contrast, five Late period ears from construction phases 4 and 5 are much thicker and evidently larger-kernelled (Jijón, 1949, pp. 476-477, pl. 111, left). Four are dark (morado), one yellow. The lengths are given as 67 to 124 mm. The diameters of the ears—by ratio measurement on the plate—would be in the neighborhood of 40 to 55 mm. The number of rows (hileras horizontales) is said to be 18 to 20; of kernels per row, 14 to 17. (The last figure perhaps should be 27, for on the longest ear one can count 12 grains in the clearer part of the photograph that covers not quite half its length.) The Late variety was therefore somewhat longer, considerably thicker, and had more rows than the Proto-Lima type of corn. Perhaps there were no more kernels on the ear, but these were definitely larger.

METAL

One scrap of metal—copper, 169216—was found in Proto-Lima association, with body 101. This was a fragment of sheet or plate with bits of textile fabric adhering. It was mainly corroded to green carbonates and hydroxides. The mass consisted of at least 90 per cent copper, with traces of silver, lead, and silica, by chemical examination. Metallographic examination by Dr. Robert K. Wyant, Department of Geology, of a small bright metallic surface (which had led me at first to construe the specimen as pyrite) corroborated this determination.

This seems to be the first indubitable occurrence of metal in Proto-Lima culture. Uhle apparently found neither copper nor gold in his explorations at Nievería for the University of California and for the Peruvian Government. (The California collections were described by Gayton, 1927; the Government material was never systematically described by Uhle or others.) Muelle's (1935) one grave at Nievería contained none. Jijón (1949) lists one piece, a star-pointed warclub head, as being Proto-Lima, but analysis of his text indicates that the attribution is an error and that the specimen is Late. It is illustrated as a six-pointed star (fig. 14, p. 467), but the accompanying text speaks of it as five-pointed. It is there mentioned as coming from grave 59 ("LIX"). Grave 59 is described and classified (pp. 80 and 92) as of the fourth "fase constructiva" of the pyramid, as of type "f," as containing a child's body in a "paquete" of Sub-Chancay or Late type, and as being accompanied by a pottery vessel which Jijón regards as Inca-influenced and which the illustration (fig. 53, p. 80) at least shows to be indubitably of Late period.

This sporadic occurrence in Proto-Lima about parallels that in Middle Cañete, which was presumably more or less contemporary.

By contrast, copper, while not abundant, occurs with fair frequency in the Late burials subsequently intruded into the mounds at Aramburú.¹

PIGMENT

In a trial excavation on the summit of the main mass of pyramid 15 we found and I was able to preserve a fragment of an adobe brick painted yellow. Dr. Wyant has examined the pigment and finds it to be the mineral iron limonite, with traces of organic matter present. The limonite contained 31 per cent of neutral gray clay. This may be due to the use of a limonite-bearing clay, or to dilution of the pigment with clay. Half the concentration of limonite actually used would probably have sufficed to color a wall effectively.

ANTLER

A piece of antler, 169381, is from the Peruvian white tail deer, *Odocoileus peruvianus*, which now does not range farther south, on the coast, than Lambayeque. The piece consists of the main prong minus its base, and with one side prong removed. (A two-prong antler found by Uhle in Chavín-period Ancón, as well as a bone implement, and another antler from Chavín-period Supe, were identified as from the large highland deer, *Hippocamelus*. See Kroeber, 1944, pp. 119-121.)

SUMMARY

The culture represented in the graves of the Proto-Lima cemetery may be summarized as follows:

Burial in extended position, prone or supine, often lashed on frames or litters of cane or sticks; also some reburial of loose bones, and one headless and armless body with the skin still intact.

Two bodies frequently associated in interment.

No skull deformation.

Bodies sometimes clothed, but in no sense sumptuously or wastefully, and usually without head-dress.

Cloth mostly of cotton, but also with or wholly of wool, apparently from vicuña as well as alpaca or llama (Appendix II).

¹ Thus, all definitely Late: 169014, wrist band, with body 15-29(?); 169064, from mouth, 15-(S)W-52; 169094, four fragments, body 16-5; 169143, fragment, 15-W-59; 169150, from mouth, 15-W-60; 169154, fragment, near head, 15-W-62; 169360, fragment, 15-5(?); 169361, fragment, 15-19(?); 169371a, bit of sheet metal, 15-W-70; 169470, copper sheet, from final caving of excavation. Also, green copper stains on teeth or jaw: 169070, 169107 (15-W-52), 169121 (15-W-55).

Next to plain cloth, tapestry is most common, in at least four varieties. Pattern weave, twill, and embroidery also occur, and, according to Jijón, brocade, gingham, tie-dyeing, and painting.

Basketry typically twined, not large. Jijón adds wicker and twill baskets, but from graves which I regard as post-Proto-Lima.

Spindle whorls probably cylindrical.

Rag and string dolls and crosses on canes, sometimes on litters or with bits of bluish rock attached.

Use of unshaped bits of blue rock (sodalite) in place of beads or jewels.

Usually one, sometimes two or three pottery vessels, per burial. The majority are pots without handles or high bowls with somewhat flaring, painted rim; occasionally the body of the vessel is also painted; sometimes even the collar is unpainted. These vessels are moderate-sized, fairly thin-walled, reddish to orange. A minority of graves contain fine orange "fancy" forms with modeling or pleasing painted design. Other graves perhaps contained only a two-side-handled utility cook-pot.

One grave contained miniature or symbolic vessels.

No grave contained any of the large, heavy vessels whose fragments are so abundant in the Maranga pyramids.

Metal is absent except for one small piece of copper.

Maize is characterized by slender ears of small kernels.

Jijón's grave finds in Huaca 15 closely parallel mine.

Broken Pottery Not Associated with Burials

I give here for record an account of some of the characteristic non-grave-associated Proto-Lima sherds found during the excavations. As there is no appreciable difference between the loose sherds from pyramids 15 and 16, I present them together, but with provenience specified.

More significant is the distinction between heavy ware from large jars and that from medium-sized vessels. None of the very large jars have been found actually in graves, or for that matter intact elsewhere; but there must be literally hundreds of thousands of fragments of them through the mass of the mounds as rubbish fill, or possibly as offerings. They constitute one of the salient characteristics of the Proto-Lima culture.

The more ordinary-sized ware, on the other hand, is of the same generic type as that found in graves at Maranga and Nievería.

HEAVY WARE

Conspicuous in Huaca 15, as in other Proto-Lima sites, are fragments of large heavy jars. Uhle (1910) has already commented on these and shown them *in situ* in his figures 13-16. Jijón (1949) has also discussed and illustrated the type. The ware varies from red to gray in cross section. The paste is often laminated and is full of coarse grit temper and frequently of small air spaces also. The surface is smoothed, slipped, and porous. The inside is usually unslipped or slipped only around the lip. On the outside, the ground color or slip is usually red or a brick-red orange. On this, designs are painted in a darker red and in black. White is added chiefly as a border to red or black designs, or as small circles, these latter usually over-painted on black. When employed as a border or edging for bands or patterns of other color, the white is sometimes put on first, more often last. Occasionally a narrow white band will be smeared over with black or red paint from the adjoining larger area; sometimes the white seems definitely to have been put on after the red or black, and overruns it, yet the deeper tint shines through; at other times, the white border may fail to meet the black or red area for a length of several inches, the paler red or orange slip showing through between them. It is evident that the painting on these large vessels was slovenly and was hastily done. The illustrations will verify

this judgment. It so happens that all the heavy ware here discussed and illustrated is from pyramid 16, except one, 169075, from the summit of 15.

Lot 169268: I shall first describe two large rim pieces from this lot. The first of these (fig. 36) still retains about 130 mm. of the edge of the lip.

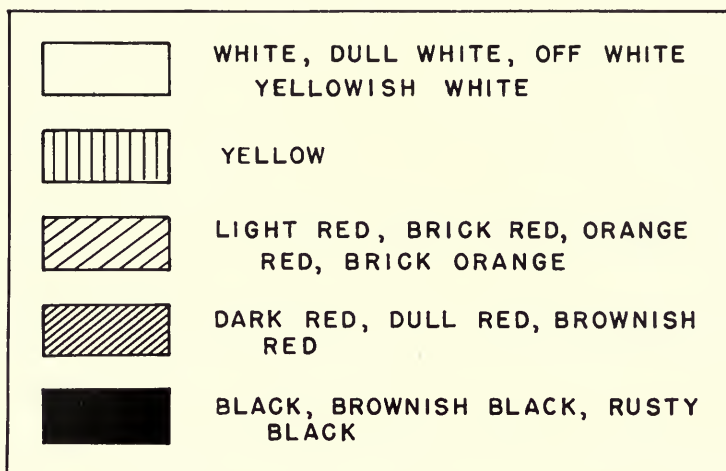


FIG. 35. Key to colors in sherd representations.

About 90 mm. below the lip, the jar turns outward in a shoulder at an angle of about 110° . At the turn or neck the thickness is 20 mm. at one edge of the sherd, 22 mm. at the other. Upward from the turn, the pottery thins rather rapidly to a rounded edge at the lip; 10 mm. below the lip edge the diameter has shrunk to 12 mm., and 5 mm. below, it is only 10 mm. In the opposite direction, down the shoulder, the thickness of the ware has decreased to 12 or 13 mm. a scant 30 mm. from the turn at the neck. The greatest horizontal length of the sherd parallel with the lip edge is about 160 mm. The lip and interior of the neck seem slipped in a dull light-colored red. On the outer side the colors are black, dark red, and white. The shoulder is dark red with a black edging. The front of the lip is mainly black with red and white stepped designs, the latter seemingly overpainted. A white band averaging about 4 mm. wide separates the painting on the shoulder from that on the lip. Actually, a strip of this breadth (4 mm.) seems to have been left between the black areas above and below, for this white band; but when this white was applied, it overlapped the black upward from it to a varying width of 2 to 3 mm., giving a gray effect for the length of the overlap.

Another piece from lot 169268 (not illustrated) does not actually come to a lip edge, and the turn at the neck is right-angled. The perpendicular

thickness of the ware above and below the neck turn runs from 20 to 23 mm., the thickness diagonally about 30 mm. The minimum thickness which I can find occurs on what I construe to be the upward or lip portion of the vessel, and is 18 mm. The maximum length of the sherd parallel to the neck turn is 161 mm. The colors that remain on the outside are a dark



FIG. 36. Heavy sherd from lot 169268, pyramid 16, near surface; $\times 0.4$.

but definite red, a slaty white, and a somewhat thin black. The inside appears to have been washed with a self-slip, that is, with a thinner suspension of the paste.

These two fragments cannot be from the same vessel, and each represents only a small fragment of its original jar, which may have served the purpose of storage of dry food or water or *chicha*. There seems no sure way of telling at present whether the jars were accidentally broken in use and their pieces treated as rubbish and used as fill along with other refuse, or whether they were deliberately broken as sacrifices. Personally I would incline to the former view because of the enormous total bulk which these big sherds must aggregate in this and other pyramids. I can hardly conceive that hundreds of thousands of massive pots were manufactured in order to be deliberately sacrificed. Also, there is much other refuse and rubbish in the mound to support this view. That the large sherds tend to come in local concentrations might seem to indicate sacrifices; but other materials also tend to be spottily concentrated—straw predominating here, gravel there, and soil or house refuse elsewhere. Moreover, if whole pots had been deliberately broken it is likely that most of the fragments would often have been deposited in one spot and could be reassembled. So far as I

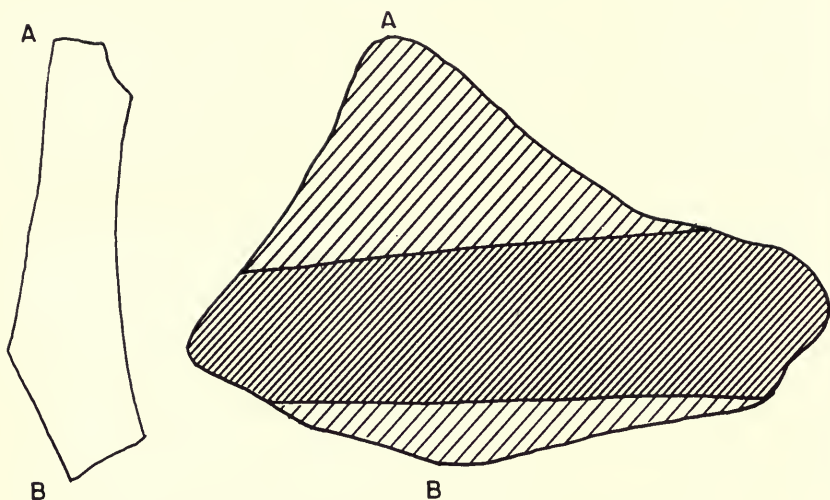


FIG. 37. Heavy sherd from lot 169268, pyramid 16; $\times 0.7$.

know, neither Uhle nor Tello nor Jijón has reassembled even the majority of one of these large vessels.

Of other sherds in lot 169268, one (fig. 37) varies from 18 to nearly 30 mm. in thickness, the latter occurring where the outer surface of the vessel makes a rather sharp turn of 35 to 40 degrees. Over this edge or angle is painted a dark red stripe from 30 to 36 mm. wide. Above and below this the surface is rather bright orange. The inside is very inadequately smoothed.

Another fragment in lot 169268 (fig. 38), more or less rectangular, measures about 100 by 140 mm.; the thickness is about 16 mm. in the region of the upper black band, about 18 mm. at the opposite edge, and a full 20 mm. a little above this where an incurve begins. The ground color is an overpainted dark red, bordered by a red-centered black band 13 to 16 mm. wide above, and about half that below. An overpainted white stripe about 3 mm. wide separates the black from the red. The inner side of the vessel is of interest because a layer of clay between 1 and 2 mm. thick has scaled off from part of the sherd while preserved in others. This may be due to lamination in the paste. On the other hand, part of the preserved layer is quite smooth and definitely more reddish than the insides of these large vessels usually are. It suggests, therefore, that a thick slip was applied as a coating to the inside of the vessel that had been left rough.

Another fragment from lot 169268 is modeled (fig. 39). The finished side of this piece is concave instead of convex as in the others. There is no

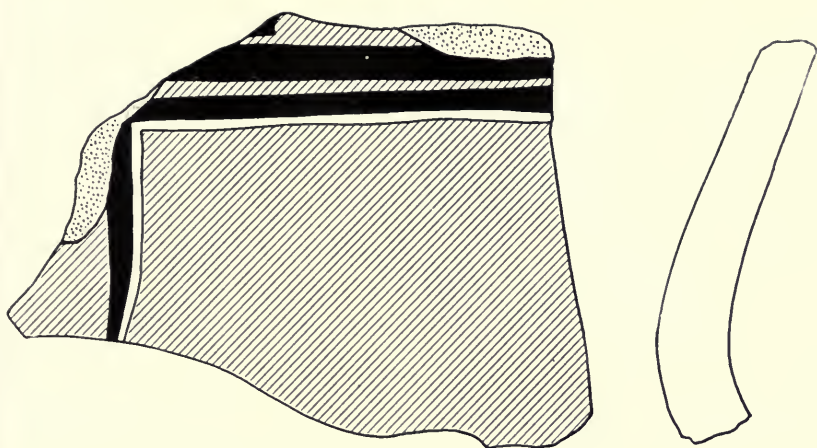


FIG. 38. Heavy sherd from lot 169268, pyramid 16; $\times 0.5$.

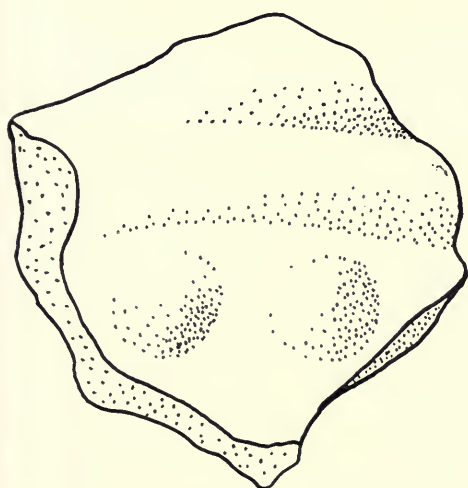
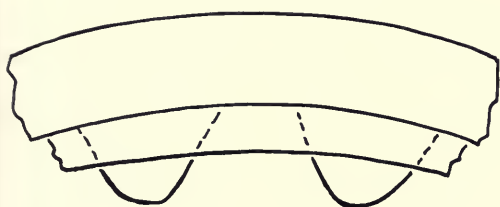


FIG. 39. Modeled sherd from lot 169268, pyramid 16; $\times 0.7$

painted pattern, but there is a rounded ridge or relief molding some 20 to 25 mm. wide and 7 or 8 mm. high. Adjoining this ridge was a series of rounded nipple-like lugs or knobs averaging around 25 to 30 mm. in diameter and about 15 or 16 mm. in height. The two that are preserved have their tops about 40 mm. apart. This modeling, and surrounding areas, had a thin reddish paint over the yellow grain of the ware. The unfinished side of the vessel shows a convex curve corresponding to the concavity of the modeled front, but there is a stronger concave curvature at right angles to it. This inner surface is completely rough, with dark gray pieces of grit, varying from 0.5 to 3 mm. in size, projecting from the surface of the brick-orange paste. The paste is laminated, with an average thickness of about 20 mm., rising to 25 and 30 mm. at the knobs and ridge. In the middle of this thickness, the paste is more grayish; for a few millimeters in from the surface it is brick-orange in color.

Another fragment (not illustrated) from this same lot was painted with curved bands separated by white and black stripes, but was overfired, so that it remains uncertain whether one or two colors of red were used on it. The smooth, painted, and slightly convex outer side is quite dark gray for 2 or 3 mm. into the paste, as shown by exposure on fracture—as if the painting had soaked this far into the 20 mm. thick mass of the vessel. Most of the paste is a quite light gray. Just before the inside surface is reached, the paste changes for a millimeter or so into light brick-red; presumably, reddish wash was applied to the interior—or was the outside exposed to reducing firing, the inside to oxidizing? The inside has been roughly smoothed: projections have been wiped off but hollows in it have not been filled. In comparison with most pieces, the paste on this fragment is hard and stonelike instead of crumbly.

Another sherd (not illustrated) from lot 169268 is triangular, with sides of roughly 170, 140, and 120 mm. and pretty uniform thickness of 18–19 mm. The curvature is light, the convex side painted, the brick-orange inside roughly smoothed. The painted design shows parts of four bands painted dark red, black, light red, and dark red. The black and light red bands are respectively 50 and 45 mm. wide. All the bands are separated by white stripes. Two of these have been overpainted on the black, except that one of them was so hastily done that it runs completely off the black on to the adjacent light red. There are also faint white hollow circles on the black, the faintness being due to the thinness of the applied white pigment. The circles are around 15 mm. in diameter, the unpainted black center 5 mm. or less.

A last fragment of this lot is definitely lighter in weight and brighter in color (fig. 40). The thickness is around 8 mm., the outer convex surface is

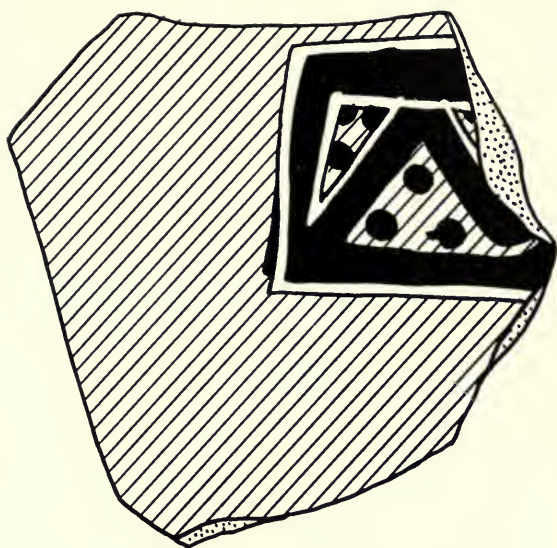


FIG. 40. Orange ware sherd from lot 169268, pyramid 16; $\times 0.8$.

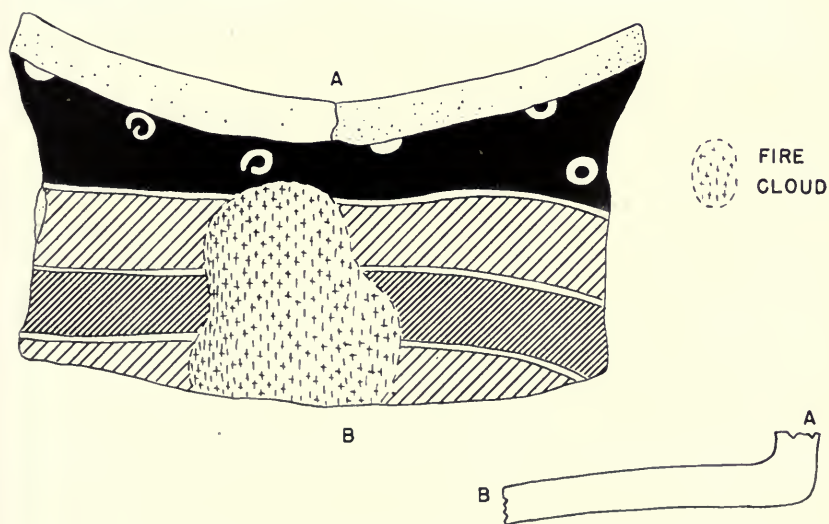


FIG. 41. Large sherd from lot 169267, pyramid 16; $\times 0.3$.

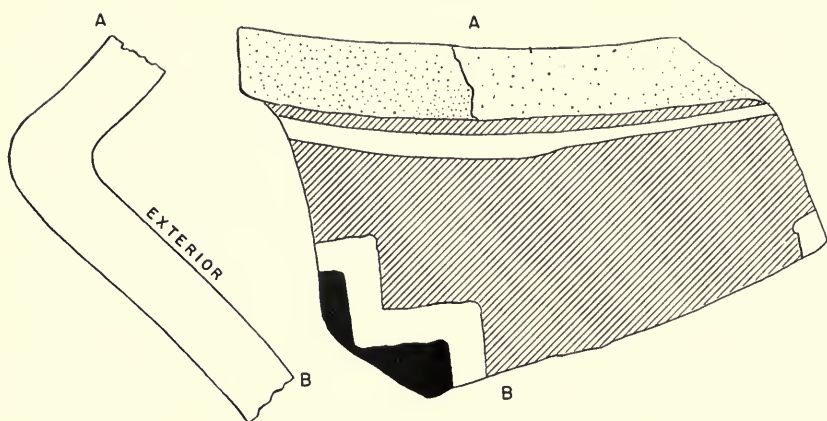


FIG. 42. Heavy sherd from lot 169267, pyramid 16; $\times 0.4$.

well smoothed, and the inner side is also smoothed but not enough to obliterate depressions. The paste is definitely finer than in the preceding examples. There are only occasional particles of grit reaching 0.5 mm. The same brick-orange color shows on the outside, the inside, and the interior, except that the orange is a little more brownish on the outer side—due, perhaps, to a self-slip—whereas the interior tends to a pinkish hue. The triangle-and-dot design is in thin black mostly bordered with narrow white stripes. As usual, it is the white which is overpainted on the black.

Lot 169267: One of the largest sherds recovered (fig. 41) is about 310 mm. along the turn of the neck, which is about right-angled. The largest surface preserved in the fragment appears to be from the shoulder of the body of the vessel and apparently averages about 18 mm. in thickness. I judge its position from the lack of finish of the inner side. What I consider to be the lip has the inside much better smoothed and washed with self-slip. The cross-section thickness of this portion varies from 22 to 25 mm. I would judge that, in this case, the shoulder or portion below the neck turn extended down more nearly vertical than horizontal, and that the *lip* was horizontal or, at any rate, relatively horizontal, as compared with the pieces described above from lot 169268. The design on the body seems to have consisted of dark red bands alternating with bands of equal width of orange-brick color, the two being separated by white bands from 4 to 6 mm. wide. The turn of the neck outside is painted black, on which white circles have been overpainted. In two of these the painter did not bother to close the circle, in two the width of the circling band is greater than the diameter of the black spot left inside. One circle is nothing but an irregular

blob with two irregular small patches of black within it. The various diameters of these white circles run from 14 to 20 mm. Everything indicates the haste with which they were painted on.

Another fragment included in lot 169267 (fig. 42) is similar to the first one described under lot 169268 (fig. 36). There are 158 mm. linear of nearly flat lip, 11 to 12 mm. wide; 10 mm. below its edge the thickness is increased to 13 mm., and 70 mm. down it is increased to 20 mm. The de-

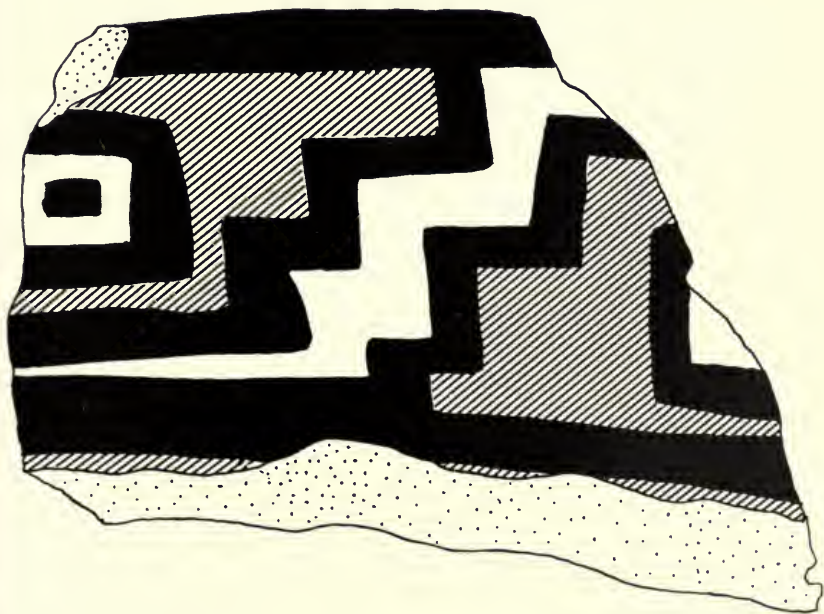


FIG. 43. Heavy rim sherd from lot 169075, excavation in summit of pyramid 15; $\times 0.8$.

sign on the outside is dark red, black, and white, and is similar to those of figures 36 and 43. The inside and the edge of the lip have been fairly well smoothed and perhaps washed with diluted paste. The latter contains numerous pieces of grit, many of them dark-colored and seemingly crystalline, and some running up to 1 and 2 mm. in size.

In this same lot there is another lip edge about 135 mm. long and unflattened; 5 mm. from the edge the thickness is only 6 or 7 mm. and 10 mm. down it is about 8 or 9 mm.

A body fragment in lot 169267 measures about 80 by 85 mm., with a thickness of 11 mm. The ground color is brick-orange, on which concentric bands have been painted in dark red 25 to 30 mm. wide bordered by black bands 5 to 6 mm. wide.

Lot 169075: In this excavated lot from the summit of Huaca 15 is a sherd (fig. 43) showing 81 mm. of completely flattened lip edge. It is about 138 mm. long just above the turn of the neck. The lip is pretty uniformly 10 mm. wide; the transverse thickness of the sherd just above the neck turn is about 24 mm. The paste is conspicuously laminated. The inside is smooth and light brick color; the outside is dark red, black, and white in steps and

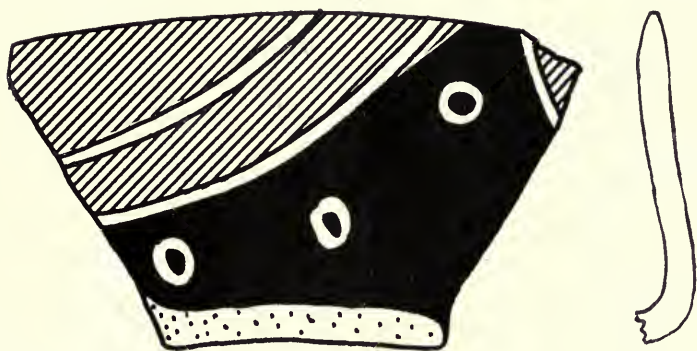


FIG. 44. Rim sherd from lot 168990, pyramid 16, excavation T-U; $\times 0.5$.

squares resembling those shown in figures 36 and 42, but the black seems to have been put on thin and has come out gray, almost as if it had been overpainted with white.

Another fragment of this same lot (not illustrated) has the actual lip somewhat more rounded than the last and therefore narrower. At about 90 to 110 mm. below the lip, the thickness varies from 18 to 25 mm. The inside is unsmoothed, irregular, and quite lumpy. The painting on the outside is the usual dark red, white, and black in stepped bands.

Lot 168990: A lip piece from lot 168990, excavated at T-U on the top of pyramid 16, is shown in figure 44. The actual lip is thin and rounded, its inside washed with red. The whole mouth part is from 70 to 75 mm. wide to the turn into the shoulder, which seems to have been made at an angle of 120° . The mouth part measures about 11 mm. thick, the first part of the shoulder only 9 mm. As usual, the white of the design is in overpainting, and the white circles on black show diameters between 11 and 15 mm. In addition to the white overpainted stripes separating red and black areas, a second and parallel white stripe is on the red.

Another, smaller rim fragment from lot 168990 (fig. 45) has a thickness of 13 mm. at 10 mm. down from the lip, and 19 mm. at 70 mm. down. The colors in this are dark red, black, white, and muddy orange, the latter being the slip. The inner side of the lip is washed with red.

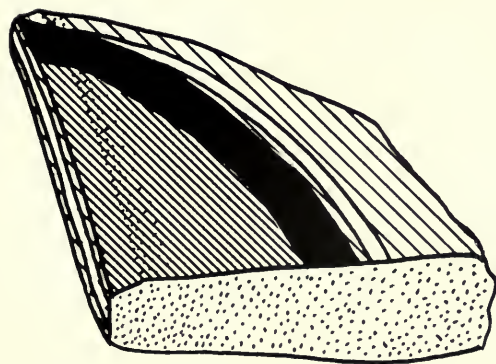


FIG. 45. Rim sherd from lot 168990, pyramid 16; $\times 0.8$.



FIG. 46. Sherd a foot long and over an inch thick, with volutes; from lot 168990, pyramid 16; $\times 0.3$.

Another fragment (not illustrated) is about 200 mm. long and from 60 to 75 mm. wide. There are two slightly curving bands, 25 or 30 mm. wide, one dark red and the other not clear, on orange slip, separated by double black-and-white stripes.

The largest sherd in lot 168990 (fig. 46) measures 332 mm. in extreme dimension following the slightly convex surface of the interior. (My measurements of large sherds are made with tape, following the curvature.)

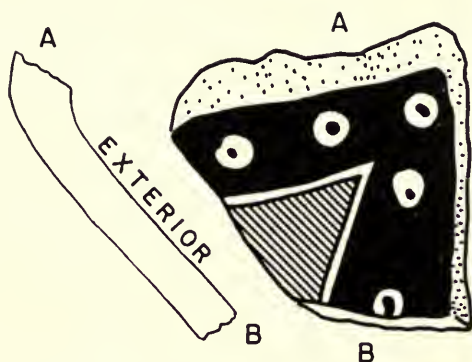


FIG. 47. Well-painted heavy sherd from lot 168990, pyramid 16; $\times 0.4$.

In thickness this piece varies from 26 to 32 mm. The reddish paste is quite coarse, with light-colored particles of grit, and is conspicuously laminated in places. The inner side is also quite rough—evidently the interior of the body part of the vessel was not at all finished. The outside, however, is comparatively smooth. The design, of two interlocking pointed curves or horns, is executed with a certain dashing sweep; one horn or volute is ochre-red outlined in black, the other is "black," but the pigment was not very heavy and the result is brownish. The slipped background is a dirty yellowish-white. That it is a slip is clear, since the paste in the interior is reddish as usual.

The sherd illustrated in figure 47 is shown for its design, which is painted a little more evenly than usual. The colors are dark red, black, and white, but the black is really an uneven dark brown, and the white tends to pinkish yellow. A narrow stripe of pinkish slip may actually have been left between the red and the black areas, since the white overpainting that variably overlies the black, the pink, and the red is visible. White over-painted hollow circles average about 10 mm. in diameter. The thickness of the sherd varies from 17 to 19 mm.

Figure 48 shows a lip from lot 168990. It is of fine paste, well smoothed, and more or less orange both inside and out. The thickness 10 mm. below

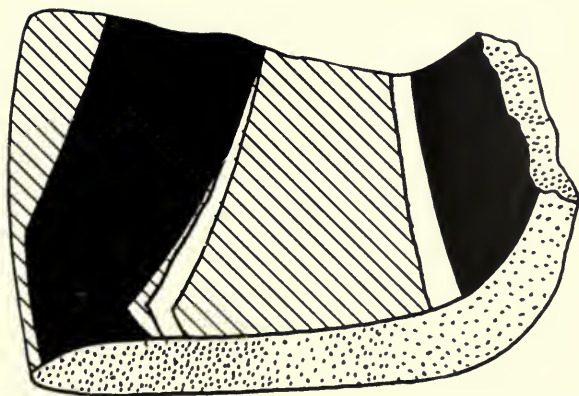


FIG. 48. Heavy rim sherd from lot 168990, pyramid 16; $\times 0.8$.

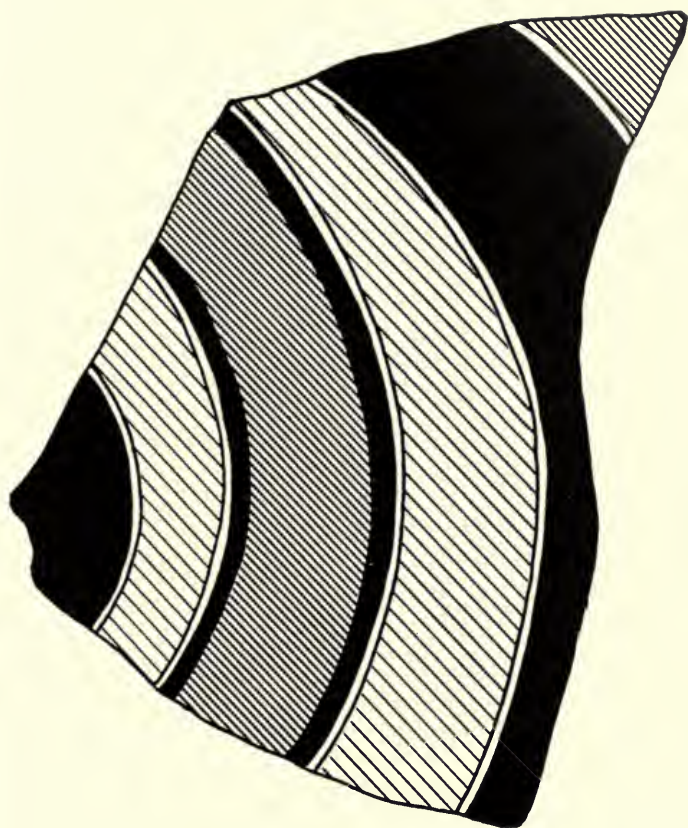


FIG. 49. Foot-long sherd from lot 169004, pyramid 16, excavation T-U; $\times 0.4$.

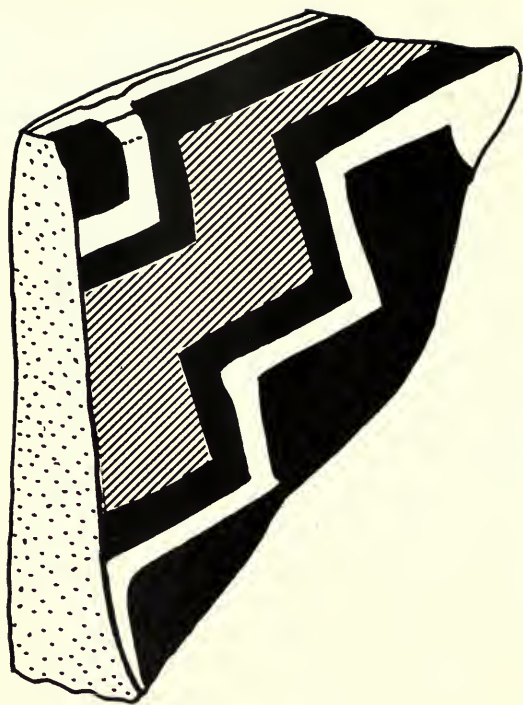


FIG. 50. Rim sherd from lot 169004, pyramid 16; $\times 0.8$.



FIG. 51. Sherd with pointed volutes from lot 169004, pyramid 16; $\times 0.8$.

the edge of the lip is 9 mm., increasing to 13 mm. at the turn of the shoulder into the body of the vessel. The painting is in black, edged by white.

Lot 169004: Figures 49–51 show three sherds from a second lot secured from the same T-U area of pyramid 16. The largest sherd (fig. 49) is 300 mm. long and varies in thickness from 17 to 22 mm. However, the inside is very rough and laminated and may have scaled off in places. As for the design, the curved bands are, in order outward, black, brick red, dark red,

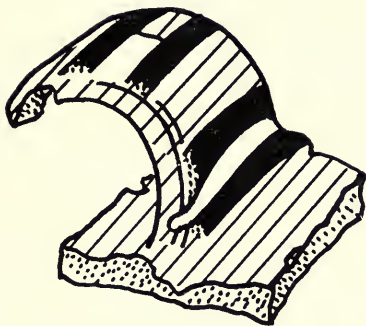


FIG. 52. Painted strap handle from lot 169177, excavation in pyramid 16; $\times 1$.

brick red, black, and dark red. These are separated by stripes of white or whitish overpaint which mostly has come out somewhat on the side of pink. In addition, the first dark red band is bordered on both edges by black stripes as well as white ones. Both black bands are overpainted in the usual white circles, but so faintly that the draftsman was uncertain of them.

The second fragment (fig. 50) is part of a neck. The lip edge is nearly flat, about 8 mm. wide, and painted white. The thickness, farthest away from the lip, is 23 mm. The inner side is somewhat smoothed off some 20 or 30 mm. down from the lip, but then gradually becomes rougher. The stepped design on the convex front is in dark red and black separated by white and black stripes. (Compare the pattern of figs. 36, 42, and 43.)

A third piece from lot 169004 (fig. 51) is of interest, for it shows the volute or horn design illustrated in figure 46 on a smaller scale, and singly. This piece is finer and smoother ware, varying from 6 to 10 mm. in thickness. The design colors are black and reddish orange separated by white overpainted stripes.

Lot 168987: A rather small sherd (not illustrated) out of this lot is mentioned because of its thickness, which runs from 30 to 33 mm. It is almost flat, with barely perceptible convexity on the smooth side. This side is

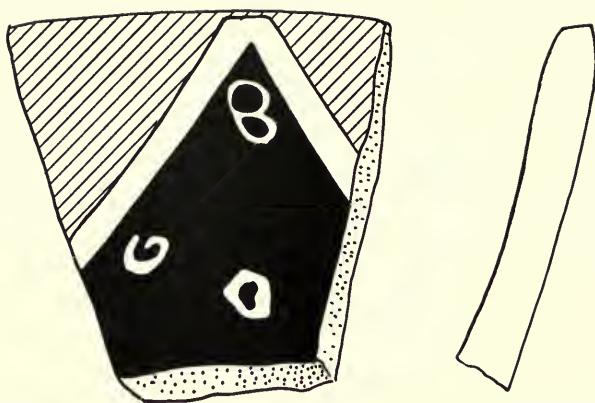


FIG. 53. Rim sherd, sloppy overpainting, from lot 168308, surface of pyramid 16; $\times 0.6$.

painted in the usual curved bands. These are, in order: dark red band, black edging, buff white band 45 mm. wide, white stripe, black band. Whereas this outer side is quite smooth, the inside is exceedingly rough, and some of the lamination has scaled off.

Lot 169177: A sherd (not illustrated) from excavated lot 169177 consists mostly of shoulder but retains a little fragment of neck about 55 mm. wide with just a bit of the lip edge preserved. This edge is flat and about 8 mm. wide. At the turn into the shoulder the thickness is about 15 mm., but as it leaves the turn, the shoulder thins down again to 13 mm. The coloring of the painted pattern suggests that this vessel was overfired, and this is borne out by the fact that the ware in cross section is dark gray in the lip and through the outer two-thirds of the shoulder. Only the inner third of the ware in the region of the shoulder shows the usual brick-orange color, which is also the color of the hastily smoothed inner surface of the shoulder, whereas the inner side of the neck is smoothed much like the outer.

Figure 52 shows a fragment of a strap handle with transverse black and orange bars, also from lot 169177. The part of the sherd from the body is about 30 mm. square, the curve of the handle of about the same length, the thickness around 3 or 4 mm.

Two large tapering handles or spouts are also included in lot 169177. These are not illustrated but are similar in shape to the one shown in figure 61. I first assumed them both to be hollow handles projecting sideways from bowl-like corn-toasting vessels (Uhle, 1910, fig. 17, *a*; Gayton, 1927, pl. 95, *a*, *c*, *f*; Jijón, 1949, fig. 19, also pls. 18, 19). However, one of

the two shows a definite lip edge, so it must have served as a spout. Its interior, however, is very irregularly finished. The diameter at the distal end is 34 mm. on the exterior and 20 mm. on the interior, with 7 mm. thickness of wall. The diameter at the base where the piece adjoined the main vessel is about 70 mm.; the length from end to base is about 85 to 90 mm.

The second piece, also not figured, has the end broken off, so I am not sure whether this was an open spout like the preceding or a handle rounded to a closed point (as in fig. 61). The diameter at the small end is around 35 mm. on the exterior and 25 mm. on the interior, with the wall thickness

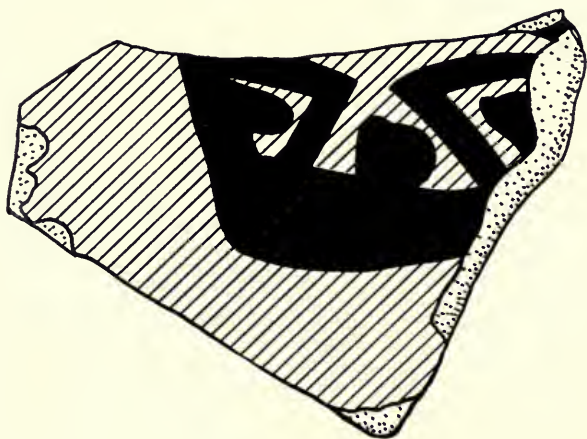


FIG. 54. Unusual design on sherd from lot 168985, from surface; $\times 0.7$.

varying from 5 to 7 mm. The interior of the funnel is much better smoothed in this case than in the last, apparently from both the distal and proximal ends. The aperture next to the pot is oval, with dimensions of about 25 to 35 mm. The length preserved is large, as in the other pieces—about 85 mm. Both specimens are brick red on the exterior as well as in paste, gritty, somewhat smoothed outside, but unpainted. The first shows a considerable patch of smudging or overfiring.

Lot 168308: On my very first visit to Maranga, I picked up several sherds, lot 168308, on the surface of pyramid 16, of which one rim is shown in figure 53, as an example of careless overpainting of white circles.

Lot 168985: The sherd shown in figure 54, on the other hand, has been selected because of its rather unusual though also carelessly executed design in black on dull orange. It is from lot 168985, which represents a miscellaneous garnering on pyramids 15, 16, and 20.

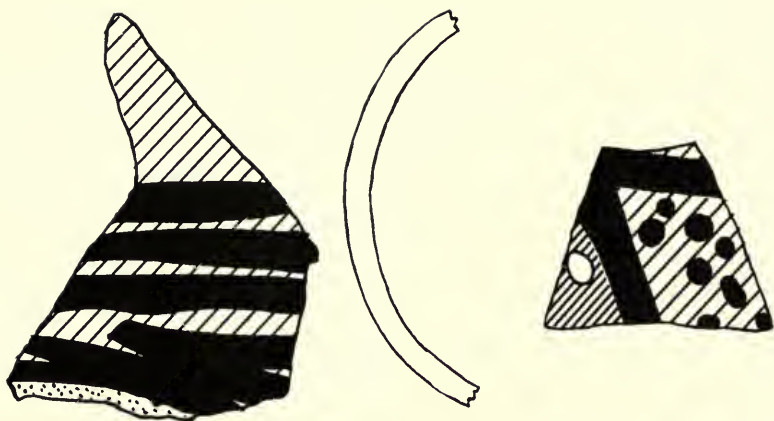


FIG. 55. Sherds from lots 169165 and 169174, pyramid 15, 2–2.5 meters deep; $\times 0.8$.

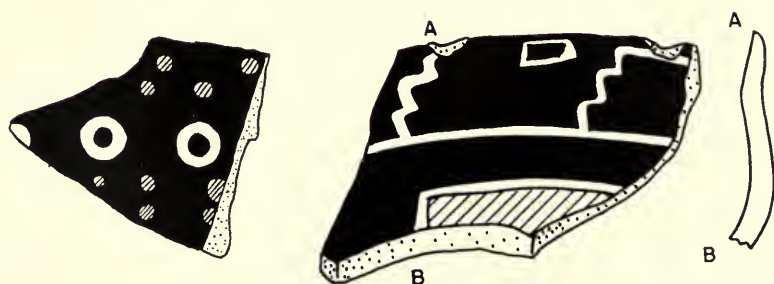


FIG. 56. Sherds with white circles, fret on black, from lot 169212, pyramid 15; 4.5 meters deep, near body P-L 101; $\times 0.6$.



FIG. 57. Four-colored sherd from lot 169140, pyramid 15; $\times 0.7$.

SMALL SHERDS AND FINE WARE

Pyramid 15

Lot 169165 (fig. 55, left): Curved sherd 3 to 4 mm. thick. Outside orange, with hasty, irregular, horizontal black stripes about 6 to 8 mm. wide. Inside unslipped. Paste orange, fine-grained. Outside burnished. Near Late bodies 15-W-62, 63, but not part of that burial.

Lot 169174 (fig. 55, right): Small sherd, fine ware. Paste grayish-orange. Inside smoothed. Outside light red or orange-red painted in black, including a group of black spots from 3 to 5 mm. in diameter. Curvature slight. From excavation 15-W or 15-S, but not in a grave.

Lot 169212 (fig. 56, left): Near Proto-Lima burial 101. Almost flat sherd about 6 mm. thick. Paste dull orange. Inside orange, smoothed but not polished. Outside solid black, carrying parts of three circles or disks under 10 mm. in diameter, painted in faint white. Much of the black surface has come off in spots or streaks.

Lot 169212 (fig. 56, right): A rim 70 mm. long that shows characteristic white-on-black step-and-rectangle design on the edge, slightly reminiscent of designs shown in figures 23, 24, 43.

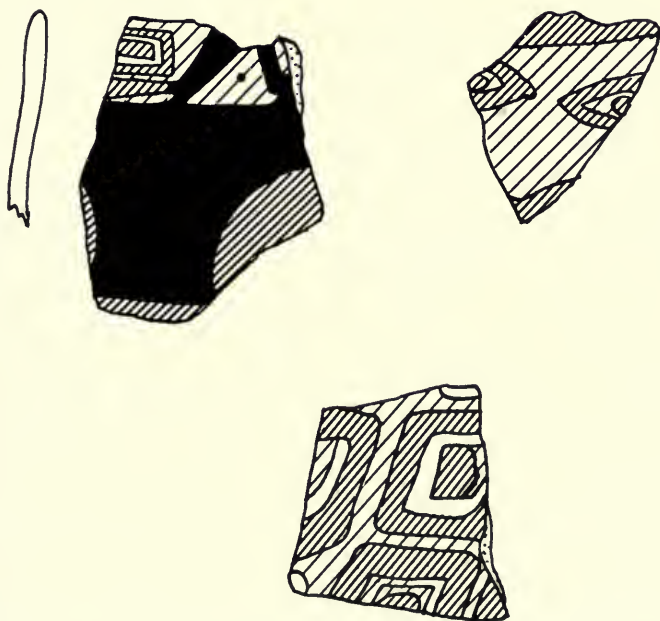


FIG. 58. Orange ware, eye or diamond designs, from lot 169180, pyramid 15; 2-3 meters deep; $\times 0.8$.

Lot 169140 (fig. 57): Nearly flat, fine-grained sherd 3.5 to 4 mm. thick. Inside poorly smoothed, dull orange. Outside polished and shows a pattern in at least four colors: black, red, yellowish brown, and brownish white. The black comes in two intensities and the paler may be gray or dark



FIG. 59. Flanged sherd from lot 169232, pyramid 15, south end of west terrace; $\times 0.8$.

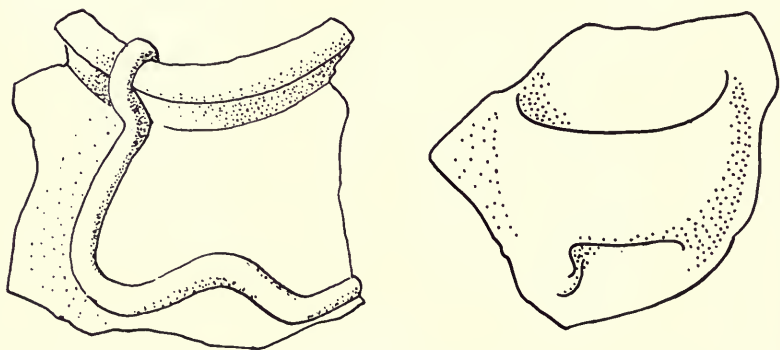


FIG. 60. Modeled rim from lot 169140 and pot handle from lot 169166, pyramid 15, surface; $\times 0.6$.

brown. Found near the modeled piece, also from lot 169140, described on page 81.

Lot 169180 (fig. 58): Three orange-red sherds with eye or diamond designs, 2-3 meters down in the main excavation of pyramid 15. The upper left sherd is orange-red, averaging around 5 mm. thick. Inside roughly smoothed, outside well polished. The design shows bright orange, red, black, and white for borders. The upper right piece is about 3 mm. thick, orange-red inside, outside well polished, orange, with dark red

diamonds containing an eye spot. The bottom sherd is about 4.5 mm. thick. The paste is bright orange. The inside shows smoothing marks. The outside is well polished. It is an overfired piece, apparently red on orange, but the orange has come out gray. The pattern is one of adjacent diamonds or rectangles containing smaller diamonds.

Modeled Pieces from Pyramid 15: The first two of these pieces are almost certainly Proto-Lima, the third indubitably so.

Lot 169232 (fig. 59): Flanged sherd. What seems to be the main body of the vessel is rather thin, the thickness of the fine paste averaging about 3 mm. The flange comes out at a right angle and is about 13 to 15 mm. thick

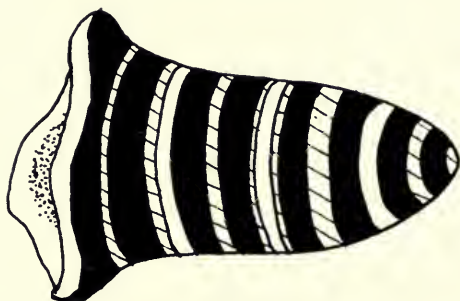


FIG. 61. Bowl handle, no. 169020, pyramid 15; 2.2 meters deep; $\times 0.8$.

where it leaves the body wall of the vessel. What I would construe as the upper side of the flange is painted black without any further pattern. The under side is red. Both are fairly smooth. The inside is reddish orange and smoothed, perhaps also slipped. The paste is grayish orange. A flanged unpainted bowl acquired (not dug) by Uhle at Nievería is shown by Gayton (1927, pl. 92, *f*).

Lot 169140 (fig. 60, left): Raised snake. Rim sherd from a small, apparently round-bodied jar which, except for a dark red slip, seems not to have been painted. The body of the vessel has a thickness of about 4 mm. The greatest thickness at the lip is around 7 mm. The relief figure of a snake or worm, rising 3–4 mm. above the surface of the vessel, emerges from over the lip down into the angle of the neck and then curves over the shoulder of the vessel. The drawing shows this modeled design better than any description. The color of the paste seems nondescript.

Lot 169166 (fig. 60, right): Loop handle from a heavy unpainted vessel whose diameter is about 7–9 mm. The paste is fairly coarse but shows no large grains of tempering. The exterior of the loop is 40 mm. from the body wall of the vessel. The loop is about 60 mm. long outside and about 27

inside, measuring its curvature parallel with the body of the vessel. This piece is from the surface, near the south foot of pyramid 15.

Conical Handles: In various spots in the excavation of pyramid 15, I found three conical bowl handles that at first sight looked to me like tripod legs of bowls. These had been broken from the bowls to which they were attached, and run 60–70 mm. in length. They are similar in general shape to the spouts of lot 169177 from pyramid 16, already described. Both handles and spouts projected more or less horizontally from incurved bowls perhaps used for toasting or popping corn.

No. 169180 (not illustrated) is rather rough outside and is unpainted except for white stripes surrounding the base.

A bowl handle, no. 169020 (fig. 61), is considerably smoothed and is surrounded by circular stripes of white, black, and orange running 3–6 mm. in width. The orange, however, has come out almost olive-brown in the firing. From the end or point of the handle the succession of colors is white, black, orange, black, white, black, orange, black, white, black, orange, black, white, black, orange, black, and white. This suggests a pattern of an orange stripe bordered on each side by black, and these in turn by white; but the white also serves as the beginning of another pattern unit of the same sort. The formula would be 4 (WBOB) + W. This piece is of finer paste than the preceding; both are orange ware. Found 0.5 meter from next sherd.

No. 169018 (not illustrated) was found near a Late period (intrusive) body, probably 15–29. This is the smallest of the three handles and the orange of its paste is the dullest. About half of its circumference has been painted with about eleven transverse bands. These extend between two longitudinal stripes. The coloration is faint: the orange looks almost as if it were red which had been overpainted on orange but had come out brownish or light brown.

Pyramid 16

Numbers 168993–169003, all from excavation T-U.

Lot 168996 (fig. 62, right): Side of a tube 64 mm. long, of a very fine yellow ware 2.5 mm. thick. The outer side is highly burnished and painted in a uniform dark red. The inside is smoothed but not polished and of the natural color of the yellow clay. The upper edge or lip is painted yellow to contrast with the red of the tube. At the lower edge there is the remnant of a brown or black stripe where the tube begins to merge into the body of the vessel. This tube is almost certainly from a double-spout or figure-and-spout.

Lot 168996: A second tube fragment (not illustrated) resembles the preceding in that the outside is burnished and painted dark red; but the inner concave side is equally well polished and painted yellow. The clay is fine-grained, gray in color with a yellowish tinge. The lip, which is rounded almost to an edge, is painted with the same yellow as the interior. The

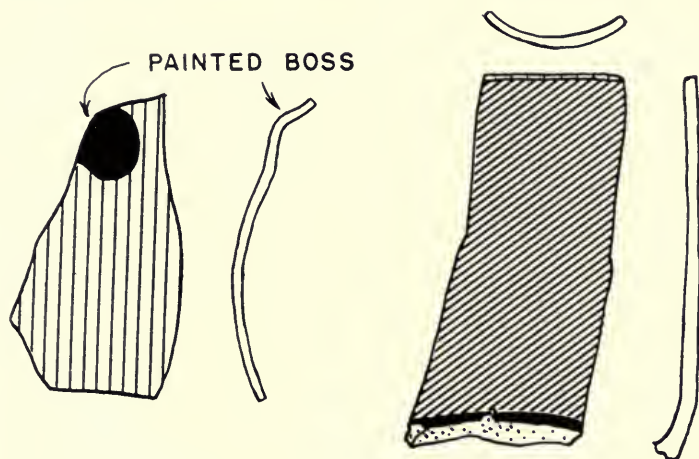


FIG. 62. Thin, polished, tubular sherds from lot 168996, pyramid 16, excavation T-U; $\times 0.7$.

maximum thickness a few millimeters below the lip is about 3.5 mm.; the minimum, about 20 mm. down from the lip, is a little more than 2 mm.

Lot 168996 (fig. 62, left): Highly polished fragment, yellow on its outer smooth side, slightly modeled. A boss that rises from the surface a couple of millimeters is painted black and forms a solid circle about 13 mm. in diameter. The clay is pale gray with a yellowish tinge and is very fine-grained. The inside is unslipped and unfinished but is smooth on account of the fineness of the paste. Other tube or spout fragments are shown in figure 63.

Lot 168998 (fig. 63, left): Part of a tube from which something projected, probably a bridge, but most of this has been broken off. The ware is of variable thickness, from 1.5 to 3.5 mm. Both inside and outside show no slip on the light orange-colored paste, nor any finish.

Lot 169003 (fig. 63, right): Slightly curved tube of yellow clay. It has had and retains in part a yellow slip which has been put on over a polished surface. The remainder of the tube has lost this polish and surface—an effect that suggests that the preceding tube may have lost its surface by

FIG. 63. Pottery tubes from lots 168998 and 169003, pyramid 16, excavation T-U; $\times 1$.

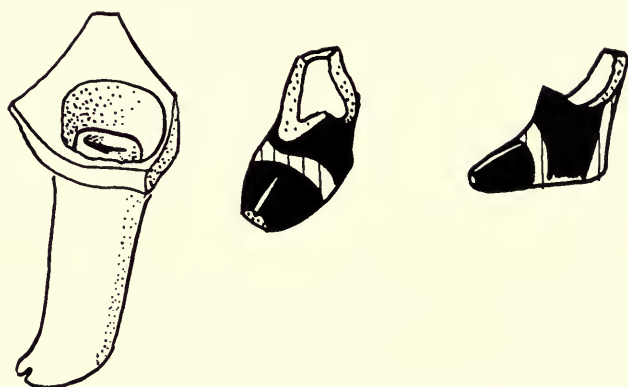
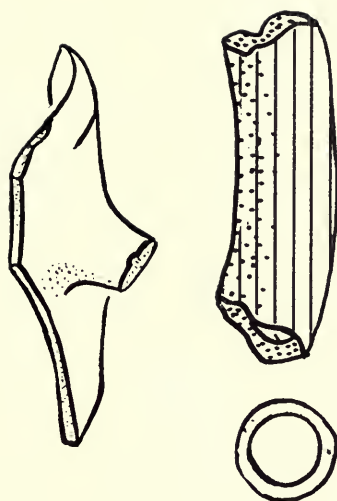


FIG. 64. Small pottery feet from lots 168998 and 169003, pyramid 16, excavation T-U; $\times 0.8$.

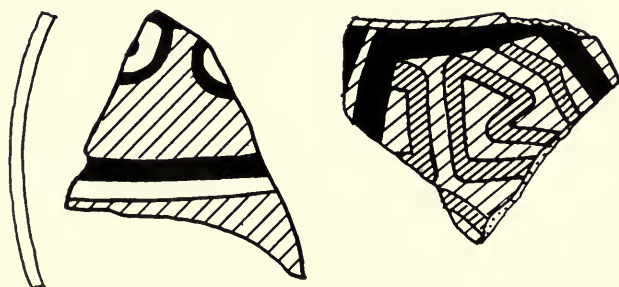


FIG. 65. Painted sherds from lot 168996, pyramid 16, excavation T-U; $\times 0.8$.

weathering. The present piece retains a maximum length of about 46 mm. The diameter of the tube, measured externally, varies from 15 to 17 mm.; internally, from 9 to 10 mm.

Lot 168998 (fig. 64, left): The modeled foot of a vessel. This was apparently slipped over a tube projecting from the bottom of the vessel. (The "foot" might conceivably be the handle of a small bowl, but the angle at which it projects, as shown by the sole of the foot, is characteristic of a tripod.) The sole of the foot is 13 by 16 mm. and ovoid, with a slight slit at one end, suggesting a cloven hoof. The clay is grayish with a tinge toward yellow, quite fine-grained, hard-baked. The foot itself has been painted with a rusty brown, but the sole is of the natural color of the pottery.

Lot 169003 (fig. 64, right; shown in two views): Also a pottery foot, black and yellow. The thickness of ware at the "ankle" is about 2 mm. The very tip of this foot has been broken off; the sole now measures 23 mm. long by 15 mm. wide. There is a bit of a crease down the front as if this piece too had been bifurcated to suggest a ruminant's hoof.

Lot 168996 (fig. 65, left): A fairly well-polished painted fragment that averages 3 mm. in thickness. There is a row of white circles with black center and black edge, the total of each circle being about 13 mm. in diameter. There are also a black and a white adjacent stripe, each about 3.5 mm. wide.

Lot 168996 (fig. 65, right): A fragment about 4 mm. thick, wholly unfinished inside, smooth but without high polish on the outside. The upper edge constitutes a lip. The ground color is burnt orange. On this is painted in dark red a fret or meander design. There is also some painting along the edge in a dull black.

Lot 169002 (not illustrated): Orange-yellow sherd of very fine paste varying from orange to yellow-gray in color and from 3 to 3.5 mm. in thickness. The inside is fairly smooth merely on account of the fineness of the paste; it has not been artificially smoothed nor is there any paint or slip on the exterior.

Lot 169002 (fig. 66, upper left): A much coarser sherd, ranging from 6.5 to 7 mm. in thickness. It is almost flat; the exterior is red, white, and black; the black area contains a white circle 10 mm. in diameter with an interior black spot about 4 mm. across. The ware is reddish instead of orange as in the preceding pieces, less fine, and shows signs of lamination. The interior is wholly unfinished, and quite rough.

Lot 168993 (fig. 66, upper right and lower left): Two neck rims of reddish ware, both about 38 mm. broad. The two fragments are from different vessels, as shown by their thickness: one is 3 to 5 mm., the other varies from 5 mm. near the lip to 16 mm. at the turn from the neck into the shoulder.

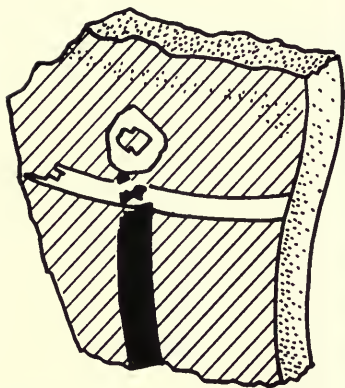
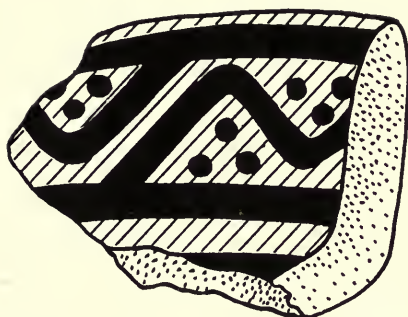


FIG. 66. Four painted sherds from lots 169002, 168993, and 168994, pyramid 16, excavation T-U; $\times 0.8$.

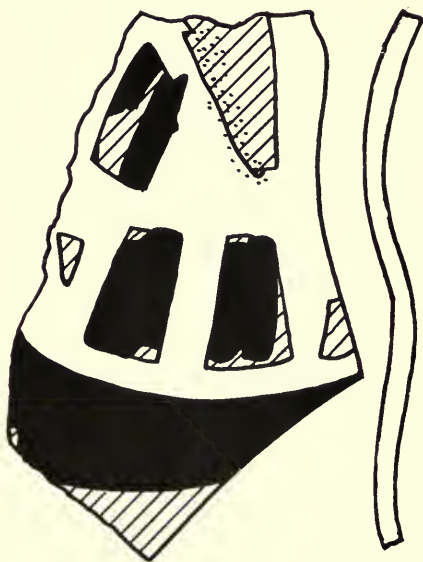


FIG. 67. Painted sherd, period uncertain, from lot 168994, pyramid 16, excavation T-U; $\times 0.8$.

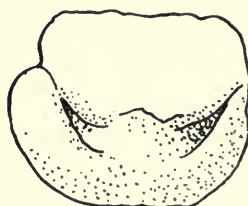
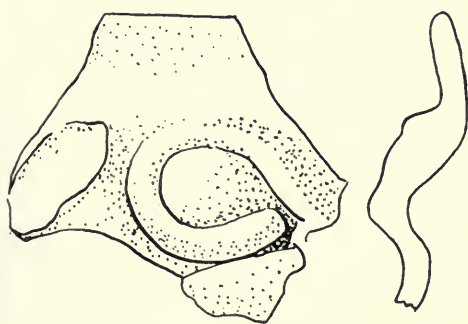
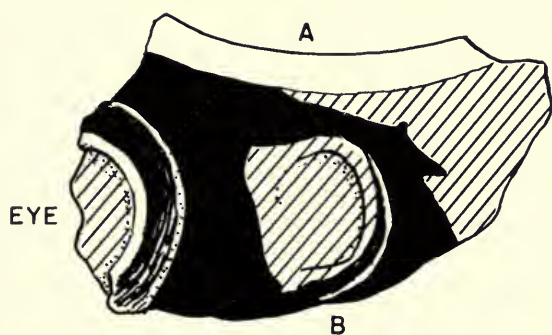
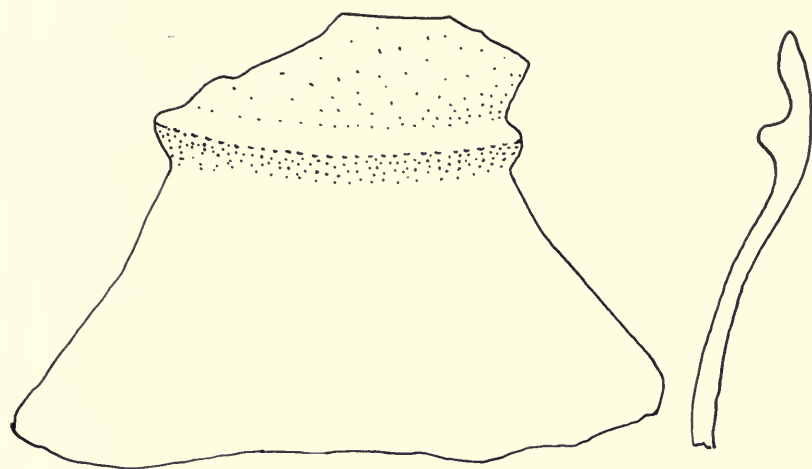


FIG. 68. Modeled sherds from lot 169000, pyramid 16, excavation T-U; $\times 0.7$.

Both pieces are slipped outside with red and overpainted in black; the patterns speak for themselves in the illustrations. The thicker piece has the inside of the lip smoothed and painted in red. The thinner piece has also been smoothed inside the lip, but this has been painted with an olive or brownish yellow.

Lot 168994 (fig. 66, lower right): Seven mm. thick, of reddish paste, the inside poorly smoothed, unslipped and of the same red color, the outer side painted in red on which is a black-and-white design as shown in the illustration. The white stripe is 4 mm. wide, the black one 6 mm., and the white circle about 12 mm. in diameter, with the unpainted red center varying from 4 to 6 mm.

Lot 168994 (fig. 67): Both the manner of painting and the style of modeling suggest that this fragment may possibly be of Late period and have worked down among the Proto-Lima sherds with which it was found. The ware is reddish and rather rough for the thickness, which is only 4 to 5 mm. The painting is very crude, the black being rusty and the white quite dirty. The inside has apparently been given a white slip over its thoroughly rough surface. It is this interior white slip which most suggests that this piece may be Late.

Lot 169000 (fig. 68): Four modeled sherds, from excavation T-U. Some of these pieces may represent intrusions due to Late period graves.

The largest fragment (fig. 68, upper) has the remnant of a lip, and about 15 mm. below this is thickened into a sort of flange. The maximum thickness, about 10 mm. below the lip, is 6 mm.; the maximum at the flange is all of 13 mm. Below the flange the thickness returns to 6 mm., but the lower edge of the sherd (some 80 or 90 mm. below the lip) in places thins to 4 and even 3.5 mm. Except for the flange, there is no modeling in this fragment.

The second fragment (fig. 68, middle), is, like the last, of not very fine red paste. It has a lip, and below this what looks like a modeled ear and half of a modeled eye. The color is reddish gray outside, with traces of black and white paint on the back and around the ear. Down from the lip we may speak of a neck about 8 mm. wide. After this neck turns at an angle of about 120° into the shoulder, the thickness is about 7 mm., but just under the ear it thins again to 5 mm.

The third sherd (fig. 68, lower left) retains part of its lip, and the modeling consists of a laid-on fillet in the shape of a spiral or snake or worm. The neck or collar is about 16 mm. wide and on the average 6 mm. thick. Where the snake fillet has been added to the body of the vessel, the thickness is 12 mm. The ware is grayish with a tinge of red, and unpainted (compare fig. 60, left, from pyramid 15).

The fourth piece from lot 169000 is best described by reference to the illustration (fig. 68, lower right). I need only add that the paste is of minimum fineness, of a reddish orange color without slip or paint on either side; but the outside is somewhat smoothed and the interior quite rough.

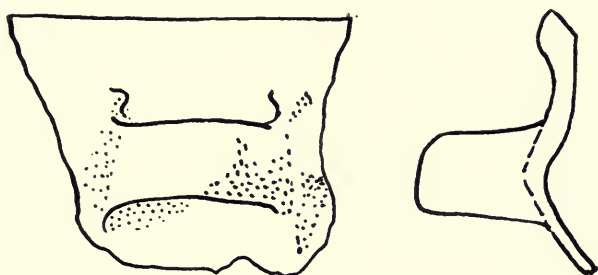


FIG. 69. Looped pot handle from lot 168995, pyramid 16, excavation T-U; $\times 1$.

Lot 168995 (fig. 69): A piece of lip with a small loop handle projecting at right angles from the side of the vessel about 14 mm. below the lip. The thickness just below the lip edge is 4.5 mm., but shortly below reduces again to 2.5, and below the handle seems to thin down to less than 2 mm. The handle itself has an internal aperture of about 11 mm. from the wall of the vessel to the handle itself. The horizontal chord of the handle loop, parallel with the body wall, is 15 mm. Pot handles are shown also in figures 60, 74, 79, 84.

Lot 169139 (fig. 70): A rim sherd found near Late burials 16-6, 16-7. Outside concave. Paste fairly fine, dull orange. Maximum thickness 8 mm.

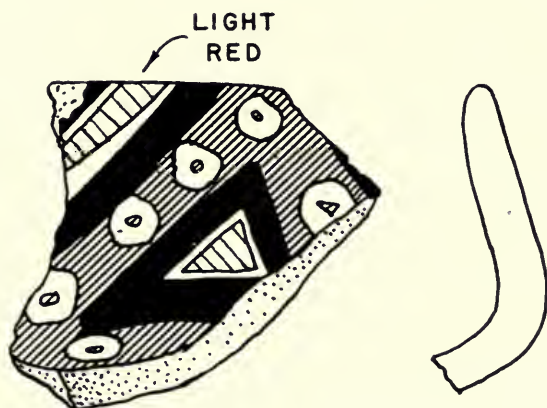


FIG. 70. Sherd from lot 169139, pyramid 16, 4 meters deep; $\times 0.8$.

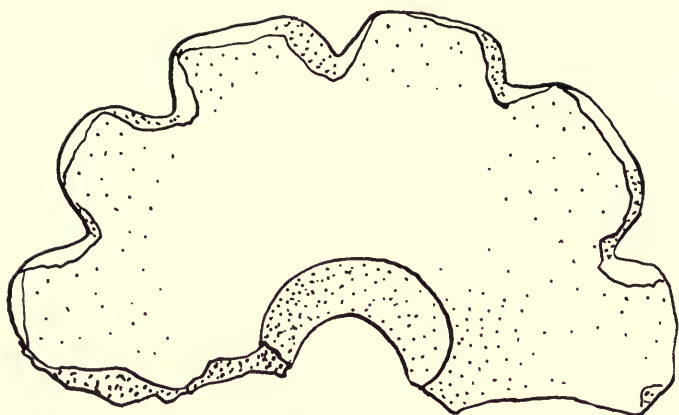


FIG. 71. Notched pottery disk from lot 169001, pyramid 16, excavation T-U; $\times 0.8$.

Inside of neck polished; outside polished and painted. Ground color outside seems to be a dark orange coming out more or less brown. On this are black triangles and arcs bordered with white, also hollow white circles running from 8 to 9 mm. in diameter. The outer polish is good.

Also from lot 169139, but not illustrated, is a rim sherd from 4 to 6 mm. thick, the maximum coming about 10 mm. below the rim. The paste is fine and a dull reddish orange, the inside smoothed but not polished. The outside is red, with a 14 mm. wide black band down from the lip. On this is painted a pale white fret. This fragment was also near bodies 16-6, 16-7: it must be remembered that Late interments in these pyramids were sunk into Proto-Lima fill.

Lot 169001 (fig. 71), again from excavation T-U in pyramid 16, is a curious object of pottery, or rather one-half of an object. It has the shape of a stone disk warclub head that has been notched or scalloped. There is a central perforation, countersunk from both sides. The diameter from edge to edge of the whole object is around 115 mm. Five somewhat uneven, not very deep, whole notches remain. When complete, there were probably twelve projecting lobes. The thickness of the piece is pretty uniformly 18 mm. The paste is laminated, coarse, and reddish gray in color. It contains considerable-sized pieces of grit. The upper surface, the one illustrated, has been pretty well smoothed, considering the roughness of the material. The under side has been much more sketchily smoothed and retains more of the reddish or pink color of the paste. The upper side may have been deliberately painted with a thin wash of black or may just have become stained. There is no telling what the piece was used for or was meant to represent. It may be a symbol standing for an actual warclub head of stone.

Huaca Juliana

North of the southern suburb of Miraflores, toward Lima but in open country in 1925, west of the main avenue connecting it with Lima, stood the Huaca Juliana (fig. 72), a pyramid of the same size and kind as those of Aramburú-Maranga. Its construction and adobes are of the same type, and so are its sherds. Uhle recognized it as being of the same culture and period.

I commenced to explore the Juliana mass, but on the second day the owners sent word to desist. Dr. Tello, as Director of the National Museum of Archaeology, insisted on my right to continue under my government permit, but it seemed wise not to press the issue, and, searching elsewhere, I discovered the Bajada Balta sites.

While my workmen were digging their trial pits in Juliana, I stepped the massive mound off and made a sketch plan of it, which is reproduced (fig. 73). This plan, made by eye and foot alone, can certainly not be accurate in detail. But I doubt whether any one else has troubled to do as much, so that, unless vertical air photographs are available, the sketch may be of some value when the mound has been removed, retraced, or built over.

The sketch is deficient particularly in two respects. It did not specify heights, nor the width of external slopes from the edge of the top to the ground—only internal slopes. These slopes are probably wider than I have shown them, especially along the long east and west sides, with the result that the pyramid as a whole looks more slender in the plan than it actually is. As to height, I may have assumed that the width of the talus slopes of internal terrace walls (*italicized numbers in plan*) was about equal to the height of the terraces. But the slope widths aggregate 56 paces of 30 inches each from the north end to the summit, or 42 meters (130 feet), which, according to my memory, in comparison with the Maranga huacas, I would consider as somewhat excessive for the height. If, however, the slopes from one terrace to another ran somewhat below 45°, my paced-off or estimated measurements of 130 feet aggregate widths would reduce to something under 130 feet of height, which I would judge about correct.

I obtained from Huaca Juliana half a dozen painted sherds from the surface, catalogued under no. 168309, and a somewhat larger number encountered in our abortive digging and catalogued under no. 168328. These are like corresponding material from Maranga. I select for illustra-



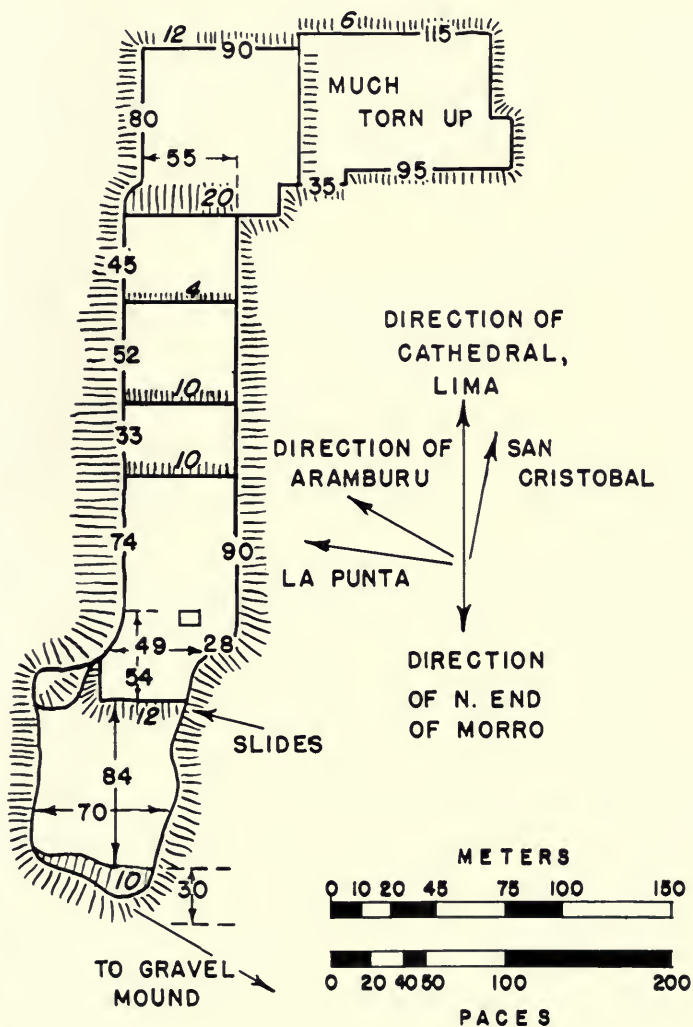
FIG. 72. Huaca Juliana, main mass seen from the northeastern extension.

tion two unpainted pieces—a modeled sherd and a side handle—but several others will be described

Figure 74 shows an unpainted sherd (from lot 168328) that bears a modeled snake, worm, or octopus tentacle somewhat similar to the two from Maranga (figs. 60, 68).¹ Slits and small hollows in the plastic relief on my sherd will be clearest in the drawing. The modeling rises some 10 to 14 mm. from the poorly smoothed surface of the vessel. The thickness of the vessel itself is pretty evenly around 9 mm. The ware is medium fine, without showing grit particles to the naked eye; its color is reddish to gray. The inner and outer surfaces also vary from gray through yellow to reddish. There are traces of rusty overpaint adjoining the modeling.

An unpainted handle (fig. 75), also from lot 168328, evidently from the side of a large vessel, stands off from the surface of this side about 30 mm. in the clear. Its horizontal diameter, parallel to the wall of the pot, reaches a maximum width of 51 mm. The handle itself is rounded and is about 18 mm. thick and 25–26 mm. wide, expanding to 40–45 mm. where it joins the vessel. The pot itself is from 8 to 10 mm. thick. The ware is rela-

¹ Jijón seems not to describe or illustrate this theme of snake modeling in his Proto-Lima pottery, though he shows one *Late* vessel (1949, fig. 82, p. 115). This differs in shape of neck and mouth, and in the serpent lying parallel to the opening, not diagonal to it. I was for a time uncertain whether my modeled “snake sherds” were Proto-Lima; but Uhle (1910, fig. 15, left) shows an interlocking one from Chancay.



45 - DISTANCE IN PAGES

10 - WIDTH OF SLOPE OF TERRACE IN PAGES

FIG. 73. Sketch plan of Huaca Juliana.

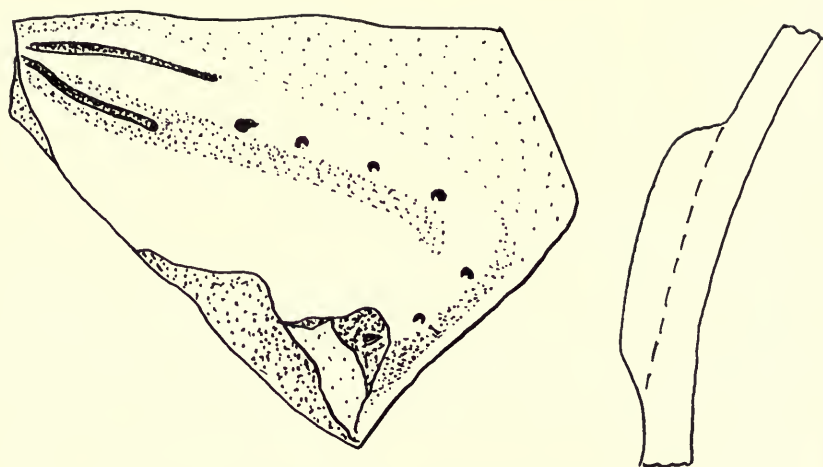


FIG. 74. Modeled sherd from Huaca Juliana, lot 168328; $\times 0.7$.

tively fine-grained for a vessel of this size and weight, and is reddish. There are striations on the inner side but no smoothing or finish. The outer side is fairly smoothed but unslipped (compare figs. 60, 69, 79, 84).

A large neck sherd, concave up-and-down but convex horizontally, is of 11–15 mm. thick semi-coarse ware with white grit. The inside is red-slipped and shows signs of smoothing. The outer side is somewhat smoother and is hastily painted in dark red and orange-yellow alternating bands separated by black borders, without white. In the piece preserved, the red band varies from 18 to 24 mm. wide within 50 mm. of length; the orange-yellow, from 16 to 30 mm. within 60 mm.; the black borders, from 7 to 10 mm. These variations give an idea of the carelessness with which the painting was done.

A somewhat smaller, polished sherd from lot 168328, also not figured here, is, like so many others, a fragment of neck turn reaching to the rounded edge or lip. The angle of the turn is about 100° . The ware is medium in texture; the dull reddish paint contains white grit particles. It runs from 9 to 12 mm. in thickness. The inside is smoothed and shows striations; its color is dull reddish-orange. The outside is polished; its colors are yellow-orange, red, black, and white. The orange seems to be the ground color and runs over on to the lip. On this, there has been painted on the collar or neck a curving dark red stripe or band bordered by two black ones, which in turn are bordered by still narrower white overpainting or "beside-painting." The curving red band averages around 14 mm. in width, the black stripes around 5 mm., the white borders 2 or 3 mm.

The shoulder is dark red, separated from the orange of the neck by a black white-edged stripe.

In lot 168328 there is further a fragment of a yellowish pottery tube or spout, whose ware varies from 2 to 3 mm. in thickness. The inner diameter of the not quite circular passage runs from 11 to 13 mm.; the outer diameter

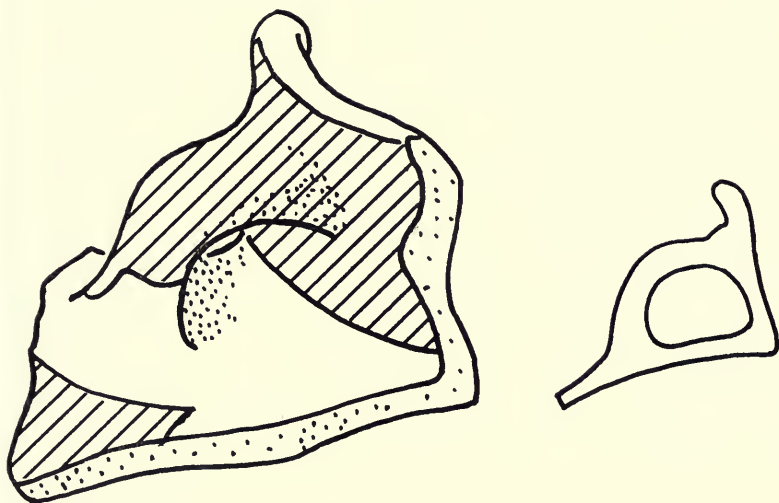


FIG. 75. Loop handle from Huaca Juliana, lot 168328; $\times 0.1$.

is 16 or 17 mm. The ware naturally is fine. The piece classes with those shown in figures 62 and 63.

A surface piece, no. 168309-1 (not illustrated), is a very large, heavy sherd from the neck turn of a large vessel. Its maximum length is some 180 mm.; the thickness is 22 mm. at the neck itself, decreasing to 16 at the shoulder and to 11-12 mm. at 10 mm. distance from the black-painted lip, of which a bit remains. The paste is coarse but not particularly laminated. It contains particles of white grit of considerable size. The color of the paste is reddish gray. The inside has been smoothed, showing striations, and is bright brick- or orange-colored. The angle at the neck turn inside is about 100 to 110°. The outer side is painted black, dark red, and white, the black crossing a red band in three steps. These steps, in turn, are over-painted in white near the edge.

Three further pieces, none illustrated, are from either lot 168309 or lot 168328. One is from the body of the vessel and shows the usual orange or light red, dark red, and black curved bands, with the dark red and orange

separated by black and white stripes, each averaging more or less 5 mm. wide. There are remains of three or four quite rudely- and thin-painted white circles around 15 mm. in diameter—in this case painted over the dark red as well as over the black. The ware varies between 12 and 14 mm. in thickness, and is medium coarse. The inside is conspicuously smoothed by wiping or dragging and is without slip.

A quite small fragment of a large vessel, more or less brick-pink in color, with grit particles both dark and light up to 3 mm. in length, shows a flat lip or edge from 25 to 27 mm. in width. This tapers rapidly until, 40 mm. down the side of the vessel, the thickness is only 21 mm. The inner side has been somewhat smoothed and washed with a self-slip. The outer side shows most of the weathering.

A somewhat similar broad lip occurs in a larger piece. The width of the flat lip is around 26 mm. and, as in the last fragment, the slope of the lip is perhaps 15 or 20° downward from its inner to its outer edge. This piece tapers even more rapidly from the lip, being only 12 mm. thick 60 mm. down. Again, the inside is roughly smoothed and washed, the outside rough, as if the surface had weathered away.

Shallow Burials at Bajada Balta, Miraflores

Bajada Balta was the name of the street in Miraflores on which I lived in 1925. It began at the park near the center of Miraflores and continued along the top northwest edge of an arroyo or quebrada—a canyon, it would be called in the western United States. This steep quebrada sloped down to the sea, and at its mouth was a bathing beach; in summer, an electric car ran up from the beach to the center of the town. Beyond the houses and gardens, the Bajada Balta more or less followed close to the level top edge (fig. 76) as the barranca got deeper. Beyond where the pavement ended, gullies ran down from the plateau into the widening quebrada. On a point (A) jutting out into the great canyon, and on a second to the south (B), I saw sherds, and when we dug, on February 11 and 12, we found fragments of twelve or fifteen shallow burials of poor people. The grave objects were inconsiderable, but the characteristic ones were Proto-Lima: the most nearly intact burials were extended, as at Aramburú-Maranga.

The general situation is shown in the sketch plan (fig. 77). Site A measured about 12 by 30 meters, and consisted of sand varying from 30 to 250 cm. deep overlying the gravel of the bluff. Site A-1, adjacent and parallel, was somewhat smaller, and the sand was only about 60 cm. deep. B, a larger site to the north, beyond a side gully, was larger, and adjoined a good-sized, fairly steep-sloped dune of sand. Sherds showed on the surface here, and they prompted me to investigate. The graves in B were at the end near the brink, farthest from the sand dune.

The general findings are perhaps best set forth by the catalogue, which is to be read together with the inset in the plan shown in figure 77, which shows the locations of the bodies found.

The best-preserved grave is shown in figure 78. The position is the extended one of the Middle Lima graves at Maranga and, according to Uhle, of the typical ones at Nievería. That litters are lacking is not surprising, for these were poor people at the Bajada Balta sites. Moreover, unlitte-
tered burials occur at Maranga.

Descriptions of a few objects follow:

Figure 79 shows a restoration of the two-handled cook-pot no. 168321a in subsite A, grave 1, as this was photographed *in situ* (see fig. 78). The



FIG. 76. Area of sites at Bajada Balta; view northwest along coast.

height is about 220 mm., the body diameter the same, the mouth aperture 100 mm.; the general contour is close to globular. The ware is quite thin—2 to 2.5 mm. in the body, 3 mm. in the neck, 4 mm. at the lip. The color varies from light red to dark brown, fire-blackened at the bottom. Carbonized matter adheres to the inside bottom.

With extended body 1 in subsite A, there were, besides the cook-pot shown in figure 79, three toy or symbolic miniature vessels and a bead, all of poorly baked clay: 168321b-e (fig. 80). The color of the ware ranges from a pale gray to a sort of buff, that is, a light gray with reddish or yellowish tinge. The ware is not fine in paste, is very rudely modeled, and is unpolished and unpainted.

The little vase or jar, 168321b (fig. 80, right), is about 75 mm. high. Its exterior diameter, both at the shoulder and again at the lip, is about 46 mm. The interior diameter at the neck varies from about 29 to 31 mm.

The "jug," no. 168321c (fig. 80, left), is such because one of its two vertical handles has been broken off and lost; it probably was meant to represent a two-handled cook-pot. It looks now somewhat like an unspouted pitcher. It stands about 44 mm. high and about 40 to 43 mm. in

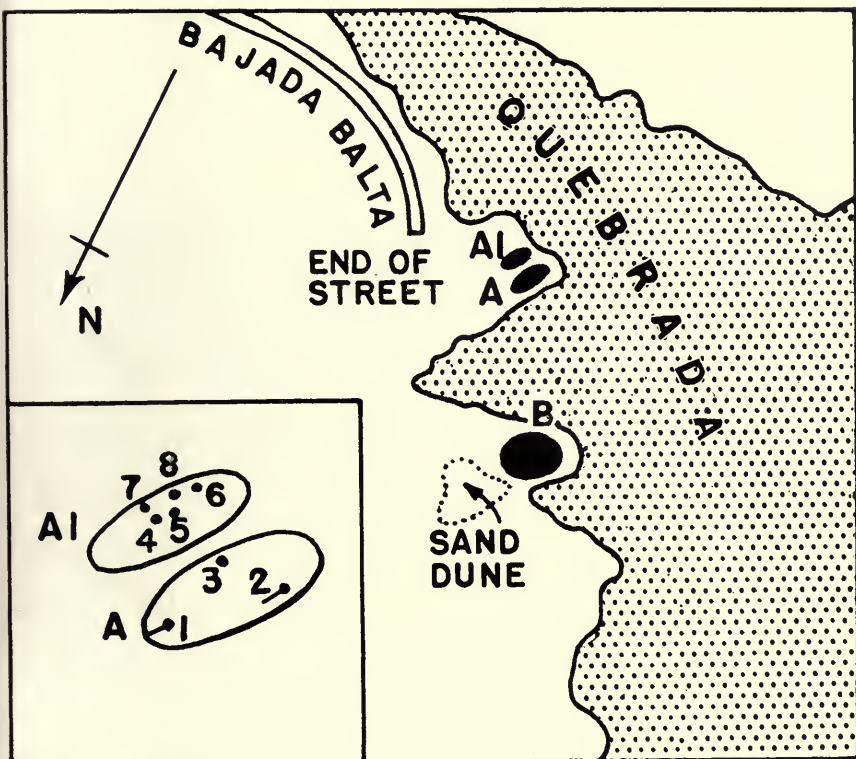


FIG. 77. Plan of small burial sites at Bajada Balta.

diameter of the body. The mouth varies from 33 to 36 mm. in exterior diameter and from 22 to 24 mm. in interior. The one preserved handle is not "indented" all the way through its "loop," but evidently was meant to represent a strap handle. In short, this is a toy or effigy two-handed cook-pot.

The bowl, 168321d (fig. 80, right center), is very irregular and looks almost as if it were little more than sun-dried. Its diameter varies from 43 to 53 mm., its height is around 25 mm.

The bead, 168321e (fig. 80, left center), is about 16 mm. high and around 20 mm. in diameter. The hole for stringing has been punched through, but as the punch was withdrawn clay came with it, forming a sort of rim or projecting edge. The diameter of the perforation is around 5 mm. but it is somewhat irregular and in places is no more than 3 mm. across.

There is stylistically little in these four little plain pieces or, for that matter, in the cook-pots, to indicate that they are positively Proto-Lima in

TABLE 2.—BAJADA BALTA A, A1, AND B FINDS

<i>Museum No.</i>	<i>Field No.</i>	<i>Sub-site</i>	<i>Description</i>
168310	10	A	Fragments of 3 mandibles. Surface.
168311	11	A	28 plain sherds. Surface.
168312	12	A	8 painted sherds. Surface.
168316	16	B	Child's skeleton, I, fragmentary; sherds of cook-pot.
168317	17	B	Fragments of adult skeleton, II.
168318	18	B	Painted sherds (fig. 82).
168319	19	B	Pot handles, sherds, shells, human bones (figs. 83-85).
168320	20	A	Grave 1. Skeleton, tibia projecting. Extended, on back, hands on groin, head to southeast; 75 cm. deep, 150 cm. above top of underlying gravel (fig. 78).
168321	21	A	Artifacts in grave 1: <i>a</i> , cook-pot, broken, by left shoulder (figs. 78, 79); <i>b</i> , toy vase, above face; <i>c</i> , toy pot or jug; <i>d</i> , toy bowl; <i>e</i> , pottery bead (or spindle whorl?—fig. 80); <i>f</i> , greenish stone bead, perforated, by left hand; <i>g</i> , pot handle; <i>c</i> , <i>d</i> , <i>e</i> to left of face.
.....	22	A	Grave 2. Fragments of 2 skeletons (3 mastoids). Extended, heads to southeast. Abandoned.
.....	23	A	Grave 3. Fragmentary skeleton, apparently of an aged woman, position not certainly discernible. Abandoned.
168322	24	A-1	Grave 4, shallow. Skull face down, lower jaw 30 cm. to S, left arm against head, rest of skeleton not traceable, but head apparently to north. Dismembered? Reburial?
168323	25	A-1	Grave 5. Partial skeleton. Sherds, including a large painted one (fig. 81).
168324	26	A-1	Grave 6. Parts of 4 skeletons.
168325	27	A-1	Broken pot from grave 6.
168326	28	A-1	Painted sherd from grave 7.
168327	29	B	Painted sherds.

type—except for their similarity to the “toy” vessels found with body 103A in the Maranga 15 Proto-Lima cemetery, some Uhle miniatures from Nievería referred to by Gayton and described by me in comparison below, and some forty or fifty “juguetes” (toys, gewgaws) from Maranga pictured by Jijón (1949, pls. 112-114). I have not been able to find in Jijón's text the systematic descriptions of the latter plates,¹ but the associated painted

¹ I give here the references I have found in Jijón (1949) to toy vessels; there may be others.

P. 34, with prone burials 146-153, six (sic) bodies 3.30 meters deep. Flat-bottomed, cylindrical, wide-mouthed, uncouth (this may be one of three first left, upper row, pl. 112).

P. 37, with five supine extended burials 103-107, 4.20 meters deep. Globular pot (perhaps on pl. 113).

P. 41, with supine extended burial 186, 5.9 meters deep. Bitubular, i.e. double-spout-and-bridge (pl. 114, upper, farthest right). Corn toaster, with handle and spout (pl. 114, upper, one of two at left end). Four wide-mouthed pots (perhaps include pl. 114, lower, fifth and sixth from left). Zoomorphic vessel, very rough and poorly modeled(?). Two mammiform flasks (perhaps pl. 113, upper, fourth from left, and lower, last on right). Hourglass-shaped support, open at both ends (pl. 114, lower, third from right; compare Gayton's “pot rest,” 1927, p. 314, and her pl. 96, *b*).

sherds and the extended and dismembered bodies are certainly Proto-Lima.

Grave 1 also contained a small bead of stone or bone, 168321f. It is 10 mm. in diameter, 4.5 thick, flat on top and bottom, rounded at the side. It seems to have been cut, not rubbed into shape. The color is grayish



FIG. 78. View of grave 1, subsite A, Bajada Balta; 75 cm. deep.

brown, with flecks or streaks of green. The perforation is about 1.5 mm. across.

No. 168323, a large shoulder sherd from A-1 grave 5 (fig. 81, left), is about 110 by 135 mm., with a pretty uniform thickness of 10 mm. of fairly coarse reddish paste. The inside has been roughly smoothed in parts. The outside has been polished but without having been properly smoothed before. The design is of the four usual colors, with curved dark red bands alternating with light red—actually dull orange—ones. These run from 30 to 40 mm. wide each, and are separated by black stripes about 7 or 8 mm. wide. These, in turn, again are bordered on one side by thin white stripes of overpainting. The curvature of the sherd is rather slight, so that the vessel must have been of good size.

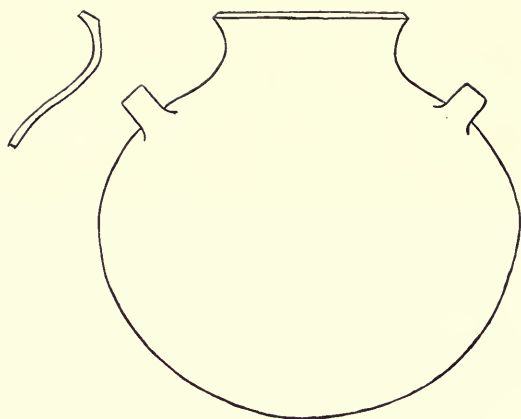


FIG. 79. Handled cook-pot no. 168321a, restored; from grave 1, Bajada Balta; $\times 0.2$.



FIG. 80. Three miniature vessels and clay bead, no. 168321b-e, from grave 1, Bajada Balta; $\times 0.5$.

A fragment, now also numbered 168323 (fig. 81, right), is part of the unpainted neck of a jar. This neck may have had a total diameter of 60 to 70 mm., rather less than in most Maranga medium-sized pots or jars. The ware is about 6 to 8 mm. thick, and both its mass and its surfaces are grayish or buff with a slight reddish tinge.

Figure 82 shows five painted sherds from subsite B, lot 168318, and one from lot 168319. These fragments alone would suffice to prove that the Bajada Balta remains are as Proto-Lima as is Maranga. Four of the six are rim sherds with more or less of the neck turn. The colors are dull orange-yellow, black, and white, or red, black, and white, with two pieces showing

both orange and red. One of the sherds looks as if it were black with over-painted white, but I believe this appearance is due to overfiring, which has turned the yellowish ground color dark gray in part; the inner side, and the ware in cross section, are also grayish, suggesting a reducing fire. In the other pieces, the interior of the ware runs from grayish red to grayish yellow, and the fineness of paste varies in proportion to the thinness of the piece.

Lot 168319, along with about 100 sherds, further included nineteen loop or strap handles from broken cook-pots. These handles seem to have been preserved from further breakage or crumbling through the added thickness where the handle joins the body of the pot. Figure 83 shows two of these handles and one attachment. The bodies of these cook-pots vary from 2 or 2.5 mm. to 4 or 5 mm. in thickness of ware—much as in the restored vessel 168321a (fig. 79). The color of the paste is red to gray—also as in no. 168321a—and it is rather coarse, considering the thinness of some of the vessel walls. Some of the interiors are somewhat smoothed, but others are surprisingly rough for vessels in which cooking was to be done. That they were so used is indicated by the blackening of the outer side. It will be seen that one of the pieces illustrated (fig. 83, right) has a slightly turned-back lip. In the two pieces figured the inner side of the handle is set off respectively 10 and 14 mm. from the outer side of the body wall. In somewhat heavier pieces this distance runs up to 20 mm. The maximum of horizontal clear space spanned by the loop handle (measured parallel with the body

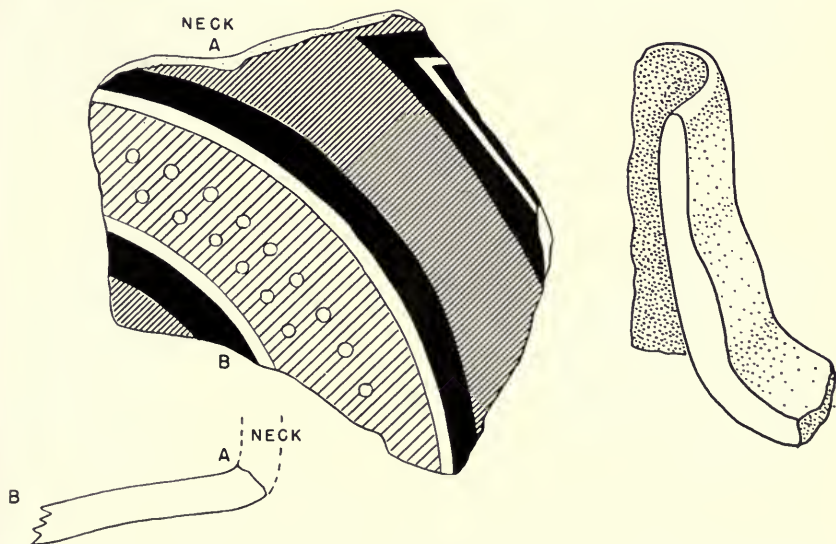


FIG. 81. Two sherds, no. 168323, subsite A-1, Bajada Balta; $\times 0.5$.

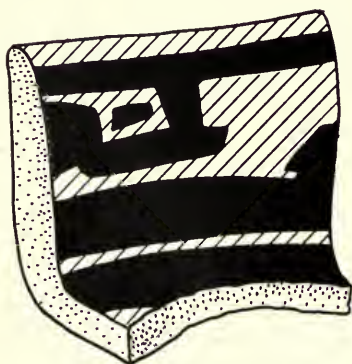
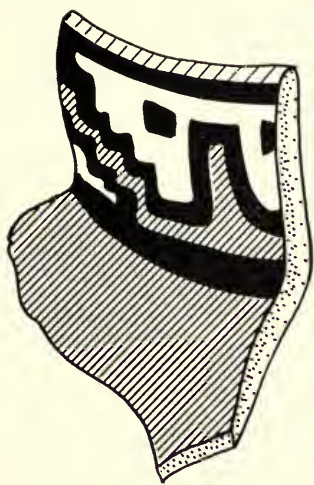
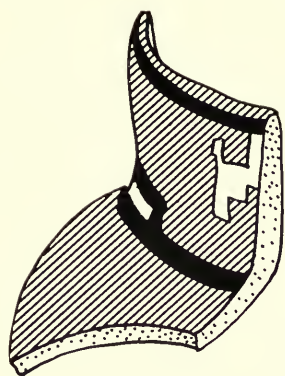


FIG. 82. Five sherds from lot 168318 and one (bottom right) from lot 168319, sub-site B, Bajada Balta; $\times 0.7$.

wall of the vessel) varies from 16 to about 32 mm. The handles are definitely of the flat or strap form, set on edge to extend horizontally or diagonally (cf. fig. 79).

Figure 84 shows three unpainted rim sherds, also from lot 168319, subsite B. They call for no special comment.

The sherd illustrated in figure 85, also from lot 168319, subsite B, is typical red on orange, with black stripes separating the colors and white edges to the black, as on so many colored pieces from pyramids 15 and 16 at Maranga.

NIEVERÍA MINIATURE VESSELS COMPARED

Uhle excavated at Nievería "thirteen miniature vessels, conceivably toys . . . [and] a pot rest . . . of light reddish paste, undecorated, and crudely made." (Gayton, 1927, p. 314: 4-9168*a-m* [no *j* used].) These were

TABLE 3.—MINIATURES EXCAVATED BY UHLE
GRAVE 2, NIEVERÍA

	<i>Height</i>	<i>Maximum diameter</i>	<i>Diameter of orifice</i>
<i>o</i> , pot rest	27	33	..
<i>c</i> , bowl, incurved	23	96	86
<i>g</i> , pot, everted lip	65	43	48
<i>m</i> , jar, flaring mouth	93	51	59
<i>n</i> , jar, flaring mouth	76	48	48
<i>i</i> , jar, cylindrical mouth	65	36	27
<i>a</i> , jar, constricted mouth	80	45	37
<i>e</i> , jar, constricted mouth	75	43	35
<i>f</i> , jar, constricted mouth	70	43	35
<i>l</i> , jar, constricted mouth	74	44	35
<i>b</i> , jar, bulge on one side	69	39	34
<i>d</i> , jar, bulge on one side	59	35	21
<i>h</i> , jar, bulge on one side	60	37	26
<i>k</i> , jar, bulge on one side	64	36	28

Dimensions in millimeters.

Diameter of asymmetric jars measured across bulge.

Measurements of 13 jars: range of height, 59-93 mm.; maximum diameter, 35-51 mm.; orifice, 21-59 mm., much the greatest variation.

in his grave 2, along with two normal-sized vessels, shown in Gayton's plates 93, *e* and 95, *i* (nos. 4-9167 and 4-9166, respectively). Of these the first is similar to my Maranga painted pot shown in figure 25; and the second is a head-and-spout of the type shown in figure 28, but painted on its sides with an interlocking pattern quite different in character from the large design on its front (Gayton, plate 96, *i*) and resembling rather the

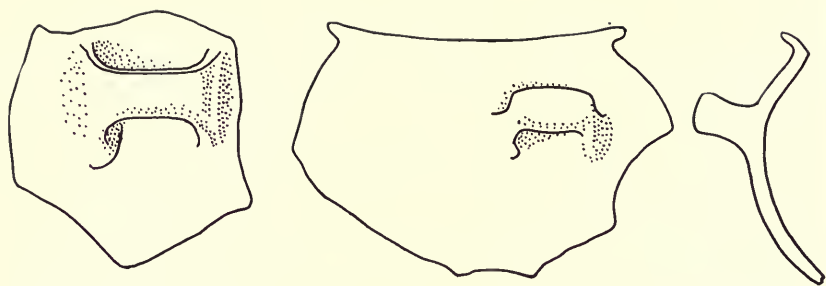


FIG. 83. Loop handles from a set of nineteen, lot 168319, subsite B, Bajada Balta; $\times 0.5$.

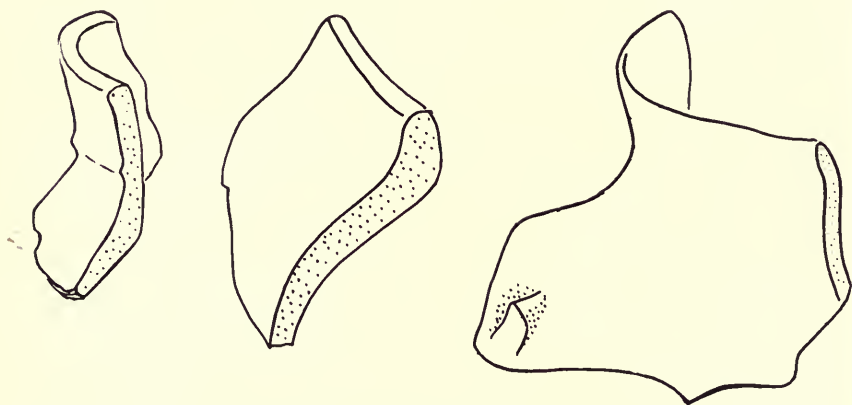


FIG. 84. Three unpainted rim sherds from lot 168319, subsite B, Bajada Balta; $\times 0.6$.



FIG. 85. Shoulder sherd from lot 168319, subsite B, Bajada Balta; $\times 0.8$.

panel designs of my figure 29. This particular Nievería grave accordingly is Proto-Lima of much the same type or phase as my Maranga cemetery.

The fourteen miniatures excavated by Uhle are red, poorly baked, soft in paste, and rough. They consist of an hourglass-shaped pot rest (*o*), a bowl (*c*) with incurved rim, a pot or jar (*g*) with everted lip, and eleven jars. Of these jars, two (*m*, *n*) have a somewhat flaring mouth; one (*i*) has a cylindrical opening; four (*a*, *e*, *f*, *l*) have a tapering or constricted mouth, and four (*b*, *d*, *h*, *k*) are asymmetrical, with one knob-like bulge. The dimensions (Table 3) help to define the shape, as well as putting on record the size.

The Bajada Balta jarlet is near the middle of the Nievería range; the bowl is smaller; the juglike pot has no exact counterpart at Nievería on account of its handles, but it is lower and smaller in the mouth than the Nievería pot *g*.

Comparisons

THE JIJÓN INTERPRETATION

Jijón y Caamaño's stratified and cemetery excavation at Aramburú-Maranga has already been mentioned. It almost abutted on mine, for it was 34 meters distant to the south on the same west face of pyramid 15, and on the same level, I should estimate. His monograph, *Maranga* (1949), contains over 500 pages, 114 plates (53 of them drawings of sherds), 219 text figures (mostly small photographic halftones), and 32 maps and plans. The facts are obviously presented in full detail, but their organization is somewhat difficult for the reader. There is no index, and the Table of Contents (*Indice*) has only 28 entries. Most of the illustrations carry no caption or legend, only a number, and there is no separate list of explanations of plates and figures by their numbers. Every object illustrated seems to be described or referred to somewhere in the text, but there is no key or device for finding where it is mentioned. The *Conclusiones* are 30 pages long, and a discussion rather than a summary of findings. In a review of *Maranga*, Bennett (1950) has tried to help other readers by assuming the labor of extracting and compiling the salient stratigraphic and period evidence scattered through Jijón's text. The result is two tables which the author might usefully have prepared for his own book. Willey (1951) also has written a lengthy review.

I do not reproduce Bennett's tabulations, but I append two briefer tables based on those of Bennett plus my struggles with *Maranga* itself. One of these two tables (no. 4) tries to sum up the distribution of pottery wares recognized by Jijón; the other (no. 5) his principal non-pottery findings on stratigraphy.

It is first of all evident from these tables that Jijón based his six periods on only about 1,050 stratigraphically placed sherds, an average of 175 per period. This would probably suffice if the wares were sharply distinct and their proportional occurrence well differentiated. Neither condition is a fact. A glance at the third column in Table 4 shows that the percentage frequencies of wares mostly vary fluctuatingly instead of sloping continuously through periods, besides varying not at all markedly. The one difference that may be accepted with a degree of confidence is that the first

TABLE 4.—REGROUPING OF JIJÓN'S PRINCIPAL POTTERY TYPES
IN STRATIFICATION AT HUACA "III" (15)

	No. of sherds	% by period *	Plates
On Black	(±180)		
W on B	94	4, 11, 13, 8, 10, 5	1-5
2-3 colors on B	87	0, 8, 10, 10, 9, 7	6-8
On Red	(±550)		
B on Red	125	24, 14, 15, 9, 10, 7	9-11
W, B on Red	398	50, 39, 28, 37, 37, 43	12-23
O, B on Red	21	2, 1.5, 3, 2, 1.4, 3	46-47
"Negative"	(±230)		
3-color	222	18, 28, 27, 17, 22, 17	24-33
2-color	6	0, 0, 0.5, 1.5, 0.3, 1.2	44-45
Orange	(± 70)		
W, B, R on O	35	0, 0, 3, 3, 5, 4	34-37
Cajamarquilla †	34	0, 0, 0, 9, 3, 5	38-43

* In order upward: Maranga 1, 2, Interlocking, Cajamarquilla 1, 2, Late Chancay.

† The acme of Proto-Lima ceramics, with some Late Nazca-Huari shapes, designs, and modeling; Gayton's strains (B and) D.

TABLE 5.—JIJÓN'S STRATIGRAPHY

Layers in Excav. "III," (15), per Plans III and II and Jijón, 1949, pp. 95 ff.	Con- struction phase	Burial type	Period	No. of sherds
1. Above clay floor <i>m</i>	Mixed		Late Chancay?	179
2. Above clay core F-F'	Mixed		Late Chancay?	
3. Ancient fill above <i>g</i>	III-3	T 2, 3: flexed on side; also sec- ondary burial	Cajamarquilla 2	368
4. Refuse between walls U-V, T'-S'	III-3		Cajamarquilla 2	
5. Layer <i>d</i>	III-3		Cajamarquilla 2	
6. Fill below <i>d</i> and over <i>f</i>	III-3		Cajamarquilla 2	
7. Layer <i>f</i>	III-2	T 1: extended, prone or su- pine	Cajamarquilla 1	159
8. Fill below <i>f</i> and <i>g</i>	III-2		Cajamarquilla 1	
			Cajamarquilla 1	
9. Layer <i>h</i>	III-1	No burials found	Interlocking	183
10. Layers <i>i, j</i>	Between II, III	No burials found	Interlocking	
11. Layer <i>k</i>	II	No burials found	Maranga 2	65
12. Layer <i>n</i>	I	No burials found	Maranga 1	99

two periods contain no orange ware; the third, only 3 per cent of orange and none of it elaborate; the upper three, 12, 8, and 9 per cent respectively of orange. I shall return to this point.

Jijón's basic classification of pottery types is even more dubious. It seems based less on stylistic qualities than on mechanical noting of colors. In Table 4 I have grouped his types or classes as it seems likely they actually grouped either stylistically or technologically. I can see no funda-

mental difference between his "White on Black" and his "White and Red on Black," except for the extra color. In some cases this extra color may have occurred on the vessel, though not on the fragment found. In the same way, I can see no significant stylistic difference between "Black on Red," "White and Black on Red," and "Cream and Black on Red."

I have come to believe that no negatively painted ware, whether three- or two-color, occurs at Aramburú-Maranga. There is not a single piece in my own sherd collection that is negative in the sense that the design was "reserved" by waxing or otherwise covering over part of the surface and then painting the unreserved areas. I have asked Rowe to examine the Uhle collection from Nievería at Berkeley as well as Uhle's Chancay Interlocking pottery there. He kindly reports a total absence from both collections of what are customarily called negative painted specimens, as well as absence of positive painting for negative effect. Gayton noted no negative ware in the Nievería collection. Willey's review of Maranga (1951) asserts that Jijón has erred in confusing negative design with negative painting on some of Willey's published Chancay sherds; that is, positive painting-in of filling color, leaving the design to stand out in the original ground color, has been construed by Jijón as a reserving of the design by something impermeable and then painting over the whole surface, which alone constitutes true "negative painting." Finally, none of the sherds shown by Jijón as negative (pls. 24-33, 44-45) are incontestably so, to judge by his drawings, whereas all of them might be positively painted, that is, without pigment-blocking or reservation. Willey in a letter concurs with me on this point. I thus feel that Jijón's entire negative group of wares has to be eliminated. It should probably be put mainly with his "On Red Background" group.

I further agree with Willey in questioning the precise reliability of Jijón's stratigraphic excavation in Huaca 15: "The depositional history must have been very complicated, with mound construction and filled pockets." According to Jijón's own Plan III, the cut "did not reveal a simple refuse or refuse-dwelling floor stratification." I am wholly in agreement as to the complexity of the mound construction. Jijón's excavation almost adjoined my earlier one, and I would certainly not have relied on any quantitative stratigraphy without much fuller measurements, note entries, and platting than I undertook. I would in fact not have undertaken an attempt at such stratigraphy without an assistant and a plane table. I did not see a draftsman or an assistant accompanying or serving Jijón, nor does he mention one in his monograph. He had the work of an average of 25 diggers to control; I, of three. I know the inadequacy of my own records and plats; and while Jijón quite likely was more systematic than

I was in measuring, entering, and drafting, and while I allow him complete conscientiousness and have faith in the over-all, approximate correctness of his data, I cannot see how it would have been humanly possible for anyone to have recorded accurately the full intricacies of a highly irregular structural growth like the Huaca 15 while supervising the progress of a gang of two dozen workmen. Add to this the scantness of barely a thousand sherds stratigraphically recovered, plus the externality of the classification into which these sherds are fitted, and it becomes apparent that some hesitation at acceptance of the Jijón scheme of interpretation is not merely captious but in order. I accept as highly probable the separation of his three earlier Proto-Lima periods (Maranga 1, 2, Interlocking, levels 12-9) from the two later (Cajamarquilla 1, 2, levels 8-3). The criterion of distinctness is the respective absence and presence of orange-colored ware, especially of the finely or floridly decorated "Cajamarquilla" type (Gayton's "D" strain, and nearly all of d'Harcourt's illustrations of huaquero-dug¹ vessels). The remainder of Jijón's period characterizations may also be largely sound, but they are certainly not yet demonstrated, and the wiser course is to refrain from weaving them into wider interpretations.

I may add that I am unclear as to the relation of Jijón's "Fases Constructivas" to his Burial Types, which he designates with Roman numerals, sometimes with first, second, and third substages. Roman numerals are used also to designate pyramids or huacas, as well as plats or plans, plates of illustrations, and graves—all of which "Romanizing" makes it no easier for the reader. Finally, plans and text show enough unexplained discrepancies to be disconcerting.

I have most faith in the association described by Jijón (1949, pp. 27-43) between specified individual burials and cultural inventory of the graves. This is a simple matter of grave association that holds good irrespective of the intricacies of walls, pavements, fills, rubbish, and other structural complications of a great pyramid gradually rising piecemeal. Moreover, the Proto-Lima methods of interment and artifact types found by Jijón agree very closely with mine, as they ought, having been excavated near mine at about the same level in the same pyramid. Operating on a larger scale, he uncovered three times as many bodies as I did, and secured a larger number of more varied artifacts; but we were obviously both retrieving samples of the same culture.

Jijón (p. 43) divides his Proto-Lima burials into three classes: A, the oldest, on the basis of position in the pyramid; B, later than A; and C, probably the latest of the three.

¹ Or are some of them of Uhle's collecting while in the service of the Peruvian Government? Even if so, Uhle may have purchased more pieces than he was able to excavate in the exploited cemetery of Nieverfa.

TABLE 6.—JIJÓN'S BURIALS

Burial no.	Depth in meters	Position	"Class"	Associated artifacts
57	3.0	Flexed	C	None
66	1.8	Flexed	C	None
69	1.9	Supine	C?	None
88	1.8	Prone	C?	None
89	(1.8)	Flexed	C	None
90	2.2	Supine	C?	R-W-B jar (fig. 3)
91	1.8	Flexed	C	2 cook-pots (fig. 4, <i>a, b</i>)
99	2.5	Supine	C?	Handled jar and canteen (fig. 6); both Chan-cay style and deposited after burial
100-105	2.3	5 skulls	C?	
107	2.2	Supine	C?	Handled spout flask, orange, feline, Cajamarquilla style (fig. 7)
108	2.5	Extended	C?	On a bed of sticks
134-135	2.8	Prone, 2	C?	
136-137	2.3	Prone, 2	C?	R plate; R-W-B olla; plain cook-pot
139	3.2	Skull, etc.	B?	
146-152	3.3	6 prone	C?	2 boneless trophy scalps (fig. 8, <i>c</i>); pottery Pan pipe; 2 toy bowls; cloth; R-W-B Chan-cay bowl (fig. 9), 0.15 meter above bodies
159	2.9	Prone	B?	W-on-B bowl, interlocking fish (fig. 10); R bowl, W-on-B fish design (fig. 11)
161	2.8	Prone	C?	
153-157	4.2	5 supine	A	Fret-border jar (fig. 12); orange jar (fig. 13); toy jar; cloth
170-173	4.6	4 supine	A	Cane litter (fig. 14, <i>a, b</i>); mammiform canteen (fig. 15); pottery figure, human, seated, like Gayton, pl. 95, <i>h</i> (fig. 16); bridged double-spout (fig. 17); bowl (fig. 18); 2-handled recurved bowl like Gayton, pl. 95, <i>a, c</i> (fig. 19); double-spout jar (fig. 20); Pan pipe; shell disk beads; 8 toy jars; 2 rag and thread dolls (pl. 104); etc.
186	5.9	Supine	A	Olla (fig. 22); dog body; rag doll; double-spout jar; 12 toy vessels
187	(5.9)	Prone	A	4 broken Pan pipes
195-200		5 skulls	B	Thick stick
202	4.0	Prone	B?	Dog skull; plain olla; cloth

NUMBER OF BODIES

	Extended supine	Extended prone	Flexed on side	Secondarily deposited
C covered by <i>b-g</i>	5	14	4	9
B above <i>f</i> , under <i>a, b, c</i>		2	..	6
A under layer <i>f</i>	10	1	..	..

All the A burials, five of the B, and four of the C can be individually identified from his text by their grave numbers. The remaining B and C bodies I cannot so identify; but this fact introduces no confusion of moment, because the most characteristic Proto-Lima artifacts are associated

with the indubitable A group—bodies 153–157, 170–173, 186, 187. For B, skulls 195–200 seem sure, and for the rest I would guess 159, 161. For the C group, the table (p. 43) makes the four flexed burials 58, 66, 89, 91 certain; and the list (pp. 415–416) of graves containing cloth adds 100–105, 107–108, SN, 134–137, 139, 146–151.

Jijón's table (p. 43) contains some errors, and I am indebted to my colleague John Rowe for attributions additional to those I had made of bodies to levels, especially through his discovery of a partial classification of burials by levels that Jijón gives in his discussion of textiles (pp. 415–416). Rowe's computation agrees with Jijón's table (p. 43) for A and B, but for C he gives these totals: extended prone, 5; doubtful prone, 1; supine, 12; on side, 1; flexed, 4; secondary burial (loose bones), 12. However, minor discrepancies remain; for example, only five skulls are explicitly mentioned by Jijón (p. 42) for the six burials 195–200.

As best I can fit the bodies to the mound structure excavated, the A burials seem to belong to layer 8, the others perhaps to 7 and 6, all three of which Bennett in his tabulation of Jijón's findings assigns to period Cajamarquilla 1.

THE D'HARCOURT AND GAYTON ILLUSTRATIONS

In an endeavor to clarify the characteristics of Proto-Lima pottery, I have analyzed the 41 vessels illustrated by d'Harcourt and the 61 shown by Gayton.¹ I have used d'Harcourt's earlier article (1922); the Proto-Lima illustrations in his later book (1924) are fewer and are repeated from his earlier article. Most of this collection was made by Uhle *after* his Nievería excavation for the University of California. The rest were assembled by purchase, and therefore, as always, were preselected with a bias toward "interesting," odd, or fanciful pieces. Gayton described Uhle's collection at the University of California. Nearly half of this he himself excavated at Nievería, buying the somewhat larger other half from huaqueros operating, presumably at least, mainly at the same site. The Uhle-Gayton lot should therefore be less preselected; and it is so.

D'Harcourt introduced into print the name "Cajamarquilla" for the type. Cajamarquilla is a large, striking ruin about halfway between Lima and Chosica, not far from a Proto-Lima cemetery that lay in a sandy plain on Hacienda Nievería; but Cajamarquilla ruin on the surface shows no trace of anything Proto-Lima about it. Jijón has now adopted d'Har-

¹ Gayton (1927, p. 311) has a table correlating 20 vessel shapes with 18 painted design traits (plus the fact of modeling) in 137 Nievería pottery vessels. The 61 vessels I analyze are those which she illustrates.

TABLE 7.—ANALYSIS OF D'HARCOURT'S "CAJAMARQUILLA"
AND GAYTON'S NIEVERÍA CERAMIC ILLUSTRATIONS

(H, d'Harcourt, 1922, pls. 2-7; G, Gayton, 1927, pls. 91-96)

<i>Body of Vessel</i>	<i>H</i>	<i>G</i>	<i>Modeling and Shape</i>	<i>H</i>	<i>G</i>
Approximately globular.....	20	29	Figure and spout.....	5	1
Melon-shaped.....	2	..	Double spout.....	15	6
Cubical.....	1	..	Vertical spout, no handle.....	..	3
Lenticular, open bowl.....	2	5	Vertical spout, round handle...	5	7
Lenticular, 1 spout.....	..	4	Vertical spout, strap handle....	3	13
Lenticular, spout and figure...	4	1	Single small lug by spout.....	..	3
Lenticular, two spouts.....	1	4	2 small side handles, perforated		
Lenticular, handled.....	..	1	horizontally.....	1	..
Oval in horizontal section.....	2	2	2 small side handles, perforated		
Low cylinder.....	3	..	vertically.....	1	2
High cylinder.....	1	1	Modeled human figure.....	3	7
Ring, opening horizontal, IV-5..	1	1	Modeled human head.....	8	1
Figure or effigy, human or ani-			Modeled cat head.....	3	1
mal.....	1	10	Modeled cat.....	3	..
Cross-shaped and tetrapod.....	1	..	Modeled animal.....	5	2
Mammiform.....	..	1	Modeled snake.....	1	..
Open bowl or plate.....	..	1	Modeled bird.....	5	2
3 spheres piled up.....	..	1	Modeled fruit or vegetable.....	5	1
Not clear.....	2	..	45° straight single handle, 95, <i>b</i> ,		
			III-4-5.....	2	1
Total.....	41	61	45° straight handle, tubular		
			spout opposite.....	1	3
			Tripod legs, 92, <i>c</i> , 94, <i>e</i> , IV-6..	1	2
			Vertical paneling by creases...	2	2
			Projecting shelf below opening..	..	1
			Total.....	69	58
<i>Painted Design</i>					
Small white circles or dots.....	8	14			
Small black dots in rows.....	..	6			
Narrow white stripes.....	10	9			
Step fret border, II-5, II-3?....	2	4			
Interlocking fish (93, <i>h</i> , 95, <i>c</i>)..	1?	2			
Star or octopus, rays curved,					
II-2.....	1	..			
Recumbent S.....	1	1			
Hook-like sweeping curve.....	1	2			
Points radiating from spout....	..	9			
Diamond.....	..	4			
Star.....	..	1			
Triangle.....	..	3			
Chevrons.....	..	2			
Tiahuanaco type design, IV-7..	1	..			
Near-Tiahuanaco, II-3, 95, <i>f</i> ...	1	1			
Tiahuanaco trophy head, II-5..	1	..			
Flecked jaguar, IV-1, 91, <i>a</i>	1	1			
Profile feline, 95, <i>f</i>.....	..	1			
Total.....	28	60			

court's name to designate the last two of his five Proto-Lima sub-periods, characterized by showy, florid, modeled, and painted vessels, typically of an orange color, and manifesting certain influences derived from Mochica, late Nazca (B to Y), and now and then Huari and Coastal Tiahuanaco.

It is evident (Table 7) that the d'Harcourt collection is more heavily loaded with "fancy" forms: double spouts, figure and spouts, effigies, and heads, whereas the Uhle-Gayton lot contains more simple forms such as globular flasks with a strap or rod handle curving up to the spout. These simple forms belong mostly to Gayton's Strain A, with coarse, heavy, dull-reddish paste. On the contrary, the d'Harcourt vessels are predominantly of Gayton's Strain B, a finer-textured, thin-walled, smoother, orangish ware, often with a deeper red-orange slip; plus her Strain D, of similar paste but with fanciful shaping and ornamental modeling; plus Chimu, Nazca-Y, and Epigonal influences, especially in Strain D pieces.

It remains to be discovered how far Gayton's "A" component versus the "B-D-exotic" component represents a time difference and how far it represents simpler vessels versus finer show pieces (like Coastal Classic Tiahuanaco versus Coastal Epigonal, which are sometimes found in the same grave). The problem could be settled either by a large enough series of associations in graves or by a large enough "quiet" refuse stratification uncomplicated by fitful and renewed building operations.

Both Jijón's and my Proto-Lima cemeteries in Huaca 15, which I regard as essentially contemporary and perhaps as parts of one grave-field, contain less of the heavy A component than Uhle's total Nievería collection, and also less of the B-D foreign-influenced component than d'Harcourt's selected assemblage. They also contain less clean-cut "Interlocking" type of design than either Uhle or Willey found at Chancay.

Synthesis and Interpretation

This section considers the Proto-Lima culture as a whole. It refers to my exploration in Huaca 15 only so far as this is included in the picture of the total culture.

TIAHUANACOID RELATIONS

Uhle, Jijón, I, and so far as I know all others, including Tello in the main, have always been in agreement that the Aramburú-Maranga structures by and large were pre-Tiahuanaco. This conclusion is based first of all on the total absence from the pyramids of any artifacts made definitely in either highland or coastal Tiahuanaco style; and secondly on the decay and weathering of the surface of the pyramids themselves, to a degree that prevents attribution of any recency to them. The fact that the more superficial levels of the structures are honeycombed with graves containing remains of marginal Chancay type ("Sub-Chancay"), showing occasional Late Chimú influence, and were thus quite clearly deposited in the very last centuries before the arrival of the Spaniards, makes the absence of a Tiahuanaco component the more striking. The sequence was: construction and use of the pyramids in Proto-Lima times; abandonment in the Tiahuanaco period; re-use of the mounds, especially for burial, by a numerous population in the Late or Chancay era.

Incidentally, I cannot recall that a single ruin or cemetery of clear Tiahuanaco affiliation has been reported in the Rimac Valley. This seeming absence is the more notable in face of the strong representation of classic as well as epigonal Coastal Tiahuanaco pottery and textiles at both Ancón and Pachacamac immediately north and south of Lima. On the other hand, Cañete and Chinchavalles agree with Lima in absence of discovery, to date at least, of definite Tiahuanaco style remains.

It is true that Uhle did recognize a small Tiahuanaco-influenced ingredient in the Proto-Lima culture, and that this opinion has not been systematically contested. However, Uhle made the claim not for Aramburú-Maranga, but for only the part of the Proto-Lima cemetery at Nievería near Cajamarquilla which he excavated. He says (Uhle, 1910, p. 367) that the Tiahuanacoid bodies were in squatting position, and occurred (1)

among extended Proto-Lima burials, (2) in graves that had evidently disturbed Proto-Lima graves, and (3) in a subsequent extension of the main cemetery toward the desert. In these graves occurred the vessels illustrated in his figure 19, *a-d*.¹

When Uhle dug at Nievería for the University of California, he assigned particular objects in his catalogue to numbered graves, in his usual technique; but he furnished no map, diagram, or description of either graves or cemetery. When he subsequently dug there again after entering the service of the Government of Peru, he seems also to have filed no plan. Consequently his generalized statement as just summarized from his publication (1910) is all we have to rely on as regards the spatial relation of his Tiahuanacoid finds at Nievería to the Proto-Lima ones there.

What probably is the solid foundation underlying Uhle's unsupported statement is something larger; namely, the fact that Proto-Lima was not a static unit or momentary type, but a development, say, from what Jijón calls Maranga to his Cajamarquilla. "Maranga" is an actual phase of Jijón's "Interlocking"—a first development of it; "Cajamarquilla" continues until it abuts in time on Coast Tiahuanaco. Hence, remains from Aramburú and from Nievería, though in a larger sense part of one culture phase, are not identical. It is only in part of the Nievería material, or in that excavated by huaqueros at similar sites as represented by the d'Harcourt collection, that definite Tiahuanacoid resemblances or anticipations occur; and those are always minor.

¹ So the Uhle text, correctly; but the letters *c* and *e* have been interchanged in his figure 19, and, as the figure stands, *a*, *b*, and *e* (for *c*) are in true Coast Tiahuanacoid style, in design as well as in cylindrical shape. The letter *d* should also be moved from the lower-right flask vessel to the lower-left one; it is the latter which shows (faintly) a typical Tiahuanacoid feline head in one of the panels. The flask shape is of course typical Nievería, so that the figure (relettered, lower left) 19, *d* is of interest as combining an indubitable Proto-Lima shape with Tiahuanacoid design. This can only mean that such a piece was made when knowledge of the two styles co-existed. A third handled flask (fig. 19, upper left) has two added lugs or horns and looks as if its vertical striping might have been done by negative (reserved) painting. The upper-right piece in figure 19 is a typical example of what Isabel Kelly has described as "cumbrous bowls," whose horizon is Epigonal and post-Epigonal. Finally, the lower-middle figure-bridge-and-spout, actually lettered *c*, is obviously the intended *e* that Uhle (p. 367) refers to as showing a mixture of Tiahuanaco and Nazca style, which would be Nazca Y1 or Huari-Norteño in more modern terminology (his "Ica" here still means the *old* style of Ica Valley, i.e. the Nazca style). The design of this figure-and-spout I have collocated with similar ones in my figure 86 below.

It should be added that the triple-flame ornament of figure [19, "*c*" =] 19, *e* occurs also in two of the Nievería vessels in Uhle's figure 18, *a*, forming a "reminiscence," as he says properly on page 366, of the [late] Nazca style, "from which," he adds with gross exaggeration, "the whole [*sic*] Nievería style was derived." All the vessels shown in Uhle's figures 18, *b* and 19 are probably in Lima. They are not in the University of California and must have been excavated by him during the six years he served as Director of the National Museum of History of Peru.

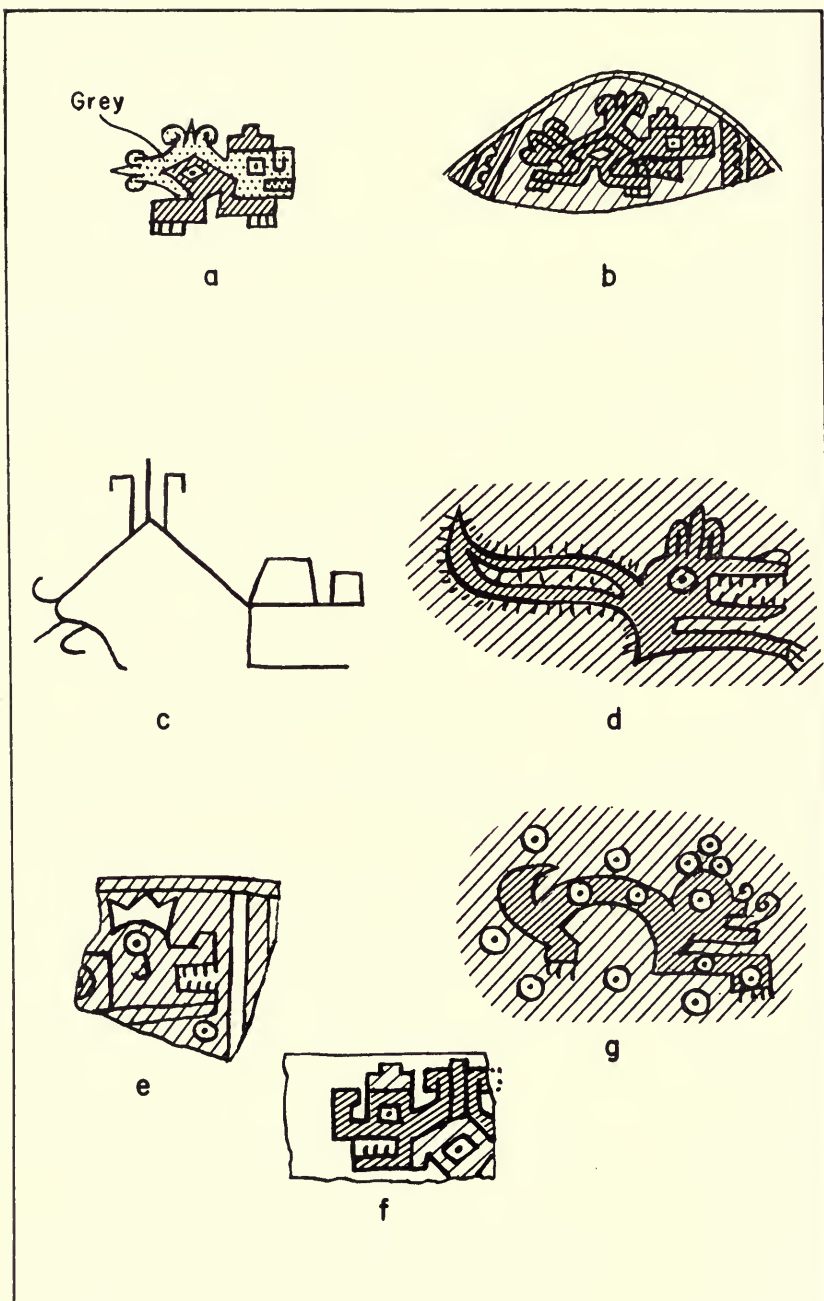


FIG. 86. Tiahuanacoid designs compared: Proto-Lima (a-d, g), Huari (e), Middle Cañete (f).

RADIATIONS OF A DESIGN MOTIVE

Figure 86 bears on this question of a Tiahuanacoid element in Proto-Lima ceramics.

a, the design on a strap-handled flask, is from Jijón's Proto-Lima grave 107 in the cemetery in Huaca 15 (1949, fig. 7, p. 31). It is a mixture of late Nazca and Tiahuanacoid. The triple ornament consisting of an erect spike and adjacent folded-over ones—a sort of Peruvian "fleur-de-lys" ornament—is characteristic of Nazca B and especially of Nazca Y2. The general position of the animal, the legs and claws, the square head, the "crown" on it, the nose, the mouth and teeth, are Tiahuanacoid. Compare for instance *e*, from Huari.

b is from a panel on the top of the figure-bridge-and-spout vessel acquired by Uhle (1910, fig. 19, lower middle, lettered *c*, meant for *e*) at Nievería and just discussed (footnote 1, p. 117). This figure agrees in every feature and detail with the last, though it seems somewhat more slovenly in execution.

c is a schematic pattern painted on a popcorn toaster bought by Uhle at Nievería and shown by Gayton (1927, pl. 95, *f*).

d (d'Harcourt, 1924, pl. 36, top) is in black and dark red on orange Proto-Lima ware. The precise provenience is unknown. The forepart of the body is reminiscent of *a* and *c*, even to the bump on the nose. The "crown," however, is a sort of "fleur-de-lys" with all of its "petals" erect. While the head is squarish, the body is flowing and simplified.

e is for comparison and is actually from a Huari sherd collected by Lila O'Neale (Kroeber, 1944, pl. 39, *d*). Huari is now generally construed as containing a heavy or preponderant Tiahuanacoid element—of Coastal rather than Titicaca type. Huari also contains ingredients—such as the "fleur-de-lys"—whose earliest occurrence,¹ so far as yet known, is in Nazca B and then Y2. Nazca Y is already mixed with Tiahuanacoid (Huari, if one will); but B is still pure Nazca unaffected by anything Tiahuanacoid. Very interesting is the hooked line that in *e* drops from the eye, in *a* marks off the nose, and in *g* issues from both nose and tongue.

¹ "Earliest" with one qualification. The tripartite "fleur-de-lys" with two curled-over petals does indeed appear first at Nazca in *pottery painting*; but rays emanating from heads or bodies, with their ends similarly curled over, occur at Chavín de Huanter in *stone sculpture* of Chavín-style associations, notably the famous Raimondi stela. Other Chavín pieces that show such end-curling of rays are Sa 2, 5, 11, and Sc 5 of my classification of Chavín sculpture (1944, pp. 82–86, 86–87); plus "open curls" in Sa 3, 9, 10 and M2. The time sequence thus would seem to be: 1, "ray-end-curling," first appearance, in stone, at Chavín; 2, reappearance, on pottery, in Nazca B (Gayton and Kroeber, 1927, pls. 8, *a*, 11, *d*, figs. 6, *d*, 9, *b*); 3, "fleur-de-lys curling," appearing more or less simultaneously in Nazca B, and then continuing into Nazca Y and Huari and terminal Proto-Lima. The number of "petals" at Nazca varies from 3 or 5 to 11. Thus,

f is also a sherd introduced for comparison. It is Middle Cañete from Cerro del Oro,¹ and was originally singled out for reproduction as showing late Nazca derivation. The fleur-de-lys has become completely rectangular, but one of its outside petals is still folded over. The nose, the teeth, the crown on the head, the central rhombus with its eyespot are all there, though the sherd includes only half of the animal. Middle Cañete is pre-Tiahuanaco (except for Tiahuanacoid bits like this one) but it has double-spouts and figure-and-spouts which, like Proto-Lima, it presumably learned from the south how to make.

g is again Proto-Lima and from d'Harcourt (1924, pl. 36, middle) and like *d* is of course also without authentic provenience, though the Nievería cemetery is quite possible. Here, skull, body, tail, and eye are rounded; only mouth and forelimb are square. The dotted circles—"stars of the heavenly jaguar"—are prominent. The Middle Ica II designs of Kroeber and Strong's (1924) figures 13-16 are strongly reminiscent. Uhle, Strong and I construed these humped and dot-surrounded animals as the last reverberations of a Tiahuanaco influence at a time when the Ica-Chincha style had already become dominantly established and virtually mature.

These seven variations on a decorative theme all contain combinations of an active Tiahuanacoid element with a reminiscence of motives going back as far as the Nazca culture. Stylistically, they thus point both to the future and the past. Five are Proto-Lima, one Middle Cañete, one Huari. I would interpret the Lima Valley examples as from the end of the Proto-Lima period, from its last flowering—d'Harcourt's and Jijón's "Cajamarquilla" phase—just before the onset of full Tiahuanaco with its cylindrical goblets, flaring double-spouts, and the like. This full Coastal Tiahuanacoid is richly exemplified at both adjacent Pachacamac and Ancón. It did not get seriously rooted, or has not been discovered, in Lima Valley, except sporadically—as represented by Uhle's three pure-style pieces from Nievería (Uhle, 1910, fig. 19, *a*, *b*, "*e*" [read "*c*"]).

with 3 petals (2 outer curled): Gayton and Kroeber, 1927, pl. 4, *e*, "phase X," more probably B; pl. 20, *b*, B; fig. 6, *c*, B?; fig. 9, *e*, B; fig. 10, *a*, *b*, Y. With 5 petals: pl. 9, *e*, B; pl. 16, *b*, Y. With 11 petals (alternate ones curled): fig. 9, *c*, *d*, *f*, *g*, B. However, while the Raimondi divinity is surrounded by rays alternating with serpents, he also holds in each hand a fasces-like scepter or thunderbolt from out of which there rises something like a serpent spearhead, whereas the fasces or rods which surround this bolt all have curled-over ends—three columns of them on each side, some higher and some lower, and some larger than the others. The total plan or effect of this scepter thus is akin to that of a many-petaled fleur-de-lys (7 petals at the top, more if the lower ones are counted in). It would thus seem that the characteristic Nazca fleur-de-lys figure may ultimately derive, like the ornamentally allied curled rays, from a Chavín origin.

¹ Kroeber (1937, pl. 77, fig. 2). Another sherd in the lot shows rounded folding-over but is too small a fragment for determination of its total figure. A sherd shown in plate 77, fig. 1 has opposing fish heads in good Interlocking style.

RELATIONS WITH OTHER CULTURES

While the relation of Proto-Lima to Tiahuanaco is essentially that of a style going out to one coming in, Proto-Lima followed on, or was contemporary with, other cultures.

White-on-Red: There is no perceptible remnant of direct influence on Proto-Lima from White-on-Red. This latter was probably too weakly characterized a style to modify others very much. The Proto-Lima overpainted white circles may derive from it, but their immediate source is in Interlocking, where, as in Proto-Lima from Aramburú, and apparently mainly from Nievería also, they characteristically come on black rather than on red.¹

Interlocking: Chancay Interlocking is not only related to Proto-Lima but obviously contributed much to its formation. Much of Proto-Lima simply *is* Interlocking. However, it is well to remember that no Interlocking completely of Uhle's Chancay type has been found in Lima Valley, and no orange or fine Proto-Lima (Jijón's "Cajamarquilla" subtype) at Chancay.

Chancay Interlocking traits more weakly represented in Proto-Lima include heavy cylindrical vessels;² prevalent black ground-color;³ and perhaps the full-fledged Interlocking fish (or snake) pattern, both in its space-exhausting and its complementary-colored form.⁴

Seemingly uncommon in Proto-Lima are breast-form jars⁵ and flat can-teen jars.⁶ Less characteristic of Proto-Lima perhaps also are painted designs of free-standing fishes or of animal figures that might have developed out of fish.⁷

¹ A link in both shape and pattern between Chancay White-on-Red and Interlocking is provided by incurved bowls (with or without a lip) bearing a rim border design of contiguous triangles or diamonds. See Kroeber (1926a), White-on-Red, pls. 86, a, 87, b, h, i; Interlocking, pl. 89, a, g. Willey (1943) calls such Interlocking bowls (pl. 6, e, f) "Intermediate."

² See Kroeber, 1926a, figs. 10-14, pl. 88, b, c, d. I found none at Aramburú-Maranga; Jijón (1949) shows pl. 18:1 and possible fragments of others.

³ See Kroeber, 1926a, figs. 12, 14, 19, 24, 26, pls. 88, c, 89, h. Again, Jijón (1949) found more than I: pls. 1:4-5; 2:1-8; 3:1-8; 4:1-7; 5:1-4, 7; 6:1-4; 7:1-5; 8:1-5.

⁴ Kroeber, 1926a, figs. 10, 12, pl. 88, c (space-exhausting), fig. 15 (simplified but complementary-colored), figs. 16, 17 (simple complementary outline in one color). Again I found these traits infrequently at Maranga: fig. 25 (complementary color and space-exhausting, but simple). Jijón (1949) found them more frequently complementary or exhaustive spatially, pls. 3:6, 7, 21:5, 6, 28, 29, 30:1, 40:2; complementary in color but simplified, reduced to triangle on stem, pls. 17:3, 18:1, 31:2, 3, 32:1, 39:4; reduced to fret, pls. 6:1-4, 27:2, 34:1, 38:1, 46:7.

⁵ Kroeber, 1926a, fig. 23; cf. also pl. 88, f; also Willey, 1943, pl. 6, g. But cf. Gayton, 1927, pl. 91, e for Proto-Lima, and Jijón, 1949, fig. 15.

⁶ Kroeber, 1926a, pl. 90, d; Gayton, 1927, pl. 96, j, k, l.

⁷ Kroeber, 1926a, fig. 21, pl. 88, a, b, e, pl. 90, d. In Proto-Lima, Gayton, 1927, pl. 91, b.

Conversely, the very large, heavy jars with shoulder and neck, which are so abundant as fill the Proto-Lima pyramids, seem scarce at Chancay,¹ just as they are wholly absent from Proto-Lima *graves* at Aramburú.

Chancay Interlocking also lacks the long or short necked, one-handled, globular flask that is so common at Nievería and recurs at Pachacamac.²

Of Chancay Interlocking elements that do recur in my Proto-Lima collection the outstanding one is the fret evolved from a geometric fish or snake, often as a border band.³

Northern influence—Salinar, Negative, or Mochica?—occurs both in Chancay and in Lima valleys, but the better modeling is in Proto-Lima,⁴ and the one piece strongly indicative of Mochica is from there.⁵

Finally, and above all, the fine orange ware that d'Harcourt and Jijón have labelled Cajamarquilla, as represented also by my figures 28 and 29, and by Uhle's jaguar double-spout (Gayton, 1927, pl. 91, *a*), is wholly unrepresented to date at Chancay. So are the corn-poppers with handle and spout (Gayton, 1927, pl. 95, *a, c, f*; Uhle, 1910, fig. 17, *a*).

All in all, Chancay-Interlocking and the culture in the Aramburú-Maranga pyramids, while closely related, are by no means identical. The differences may be the result of locality, of time, or of the social strata represented by discoveries—probably of all three.

All in all, ceramically, Proto-Lima could perhaps fairly be defined as basically a close regional variant of Chancay Interlocking, to which has been added, probably in the later half or so of its career, an orange-ware development using fine clay, rather careful painting, and fair-quality modeling, plus one-handled flasks, maize toasters, etc. This Cajamarquilla phase, as Jijón calls it, was in turn subjected at its close to some Huari-Tiahuanacoid stylistic infusion.

Mochica and North Coast: See above.

Nazca and the South: Uhle has greatly exaggerated the Nazca influence in Proto-Lima and Chancay Interlocking. The double-spout presumably

¹ Uhle (1910, fig. 4) shows half of one from Chancay, and others are being restored at the University of California.

² Gayton, 1927: shorter necked, usually strain A, pl. 93, *a-c, g-i*; longer-necked, strain B, pl. 94, *a, c, g-l*, pl. 96, *f, g*; Pachacamac, pl. 97, *c, e, f*. The nearest approach from Chancay is shown in Kroeber, 1926a, pl. 89, *e*, which is not close in shape, though the vertical striping is reminiscent of Nievería (Gayton, 1927, pl. 96, *g*).

³ Kroeber, 1926a, figs. 10, 11, 12, 15-19, pl. 88, *c*, as border; fig. 22, pl. 88, *d*, as design; and, as triangle heads, in pl. 89, *a, g*. Of these, the bowls of figs. 15-17 are on the whole most Aramburú-like. Jijón's material on the contrary seems to run rather to (Interlocking) fish *not* reduced as far as a fret (see footnote 4, p. 121).

⁴ Gayton, 1927, pls. 92, *a, b*, 95, *g-m*, and Uhle, 1910, fig. 11, as against Kroeber, 1926a, pl. 90, *e-h*.

⁵ Gayton, 1927, pl. 95, *h*. Compare also Jijón's pl. 17:3 (1949), a stirrup-mouth with orange and white complementary though reduced Interlocking fish pattern.

reached Lima and Chancay valleys, as it did Cañete, from the south, where it first appeared in Paracas Cavernas and was continued in Paracas Necropolis and Nazca. Similarly, the Interlocking fish (or snake) pattern is first known as woven in Cavernas textiles, and enters ceramics in later Nazca. Uhle's parallels between Nazca and Proto-Lima-Interlocking, in his figures 6-7,¹ 8, 9, *a-b*, 17, *a-b*, 18, *a-b* (1910), do not wholly lack basis, but they have been stressed too heavily. There are derived themes shared by the cultures, both of shape and of design, but they are special and spotty, and never close.

I have two observations on these southern relations. First, Nazca similarities, however slender, seem somewhat stronger in Chancay Interlocking than in Proto-Lima, though we have less of the former ware and that mostly of lower grade. This preponderance I would tentatively construe as the result of the fact that the Chancay Interlocking known to us averages on the whole somewhat earlier than Proto-Lima as a whole.

Second, the Nazca influence that got north to central Peru was late or decadent Nazca (B and Y).²

THE PLACE OF PROTO-LIMA

In 1944 I considered Proto-Lima or Aramburú-Nievería one of the most puzzling styles in Peru. I concluded that the indicated time-level was "final pre-Tiahuanaco, perhaps overlapping with Interlocking." (Kroeber, 1944, p. 113.) This position holds today, except that in considerable part Proto-Lima *is* Interlocking, and at the other end it encounters "Coastal" Tiahuanaco (Huari) just enough to begin being influenced by it. Thus its place in the pan-Peruvian scheme now seems sufficiently certain. It is also clear that Proto-Lima was not a strong or dominating style or culture. It was more influenced than influencing. Further information is needed to clear up three points: What constituents went into the formation of Proto-Lima? What are its internal relations? What are its nearer or intimate external relations?

A southern or "Nazca" influence on Proto-Lima is evident. It shows in the Interlocking type of design and in double-spout and figure-and-spout shapes. What caused the specific Interlocking fish design of later (B) Nazca pottery—in textiles the design goes back to Paracas Cavernas—to be singled out as the basis of a whole scheme of ceramic pattern design in central Peru is not known. But it founded the Interlocking style and there-

¹ The vessels in Uhle's figure 7 (1910) are of course from Nazca, though accredited by printer's error to Chancay.

² Uhle, 1910, fig. 7, all Nazca B; fig. 9, *b*, might be A, but is stylistically remote from 9, *a*; fig. 17, *b*, peak of Nazca B; fig. 18, *b*, left, B; right, Y; center, ?.

with Proto-Lima. Other specific Nazca style features have largely been lost or made over. This is much as in middle Cañete, which, though geographically much nearer to Nazca, also shows very little remainder of specific Nazca style.

Northern influences were weaker and more spotty. They might be Mochica, perhaps Virú-Gallinazo. There is a small percentage of Proto-Lima vessels that partly imitate northern (or is it highland?) figure-modeling; other than that, almost no influence is apparent.

Sierra influence may be suspected, especially in what Gayton has called the "A" strain of Proto-Lima ceramics. But we know so little about the Highland in this time level that more can hardly be said.

Internally, two phases are separable within Proto-Lima, "Interlocking" and "Cajamarquilla," as Jijón calls them. These very likely represent successive times, but almost certainly also reflect differences of locality and of wealth or status.

The mass of the rubbish-sherds in the Aramburú-Maranga pyramids are of the heavy, coarse Interlocking type. The fine orange Cajamarquilla ware is found only occasionally there, except in burials; it is found again in the Nievería cemetery. It is grave ware, essentially; the heavy jars were made for use and finally dumped as fill. I feel there was some time difference; but the status-wealth-purpose difference may have been even more influential. Jijón's phase-chronology is probably roughly true but leaves me skeptical as to its details. Perhaps the strongest argument for two sub-periods is the fact that the few Tiahuanacoid associations have virtually all been reported from the prevailing fine orange "Cajamarquilla" cemetery of Nievería, and not from Aramburú-Maranga, from which have come thousands of tons of heavy Interlocking-type refuse.

It is true that Cerro de Trinidad at Chancay shows no fine orange ware at all and might therefore plausibly be construed as earlier than the Proto-Lima of Aramburú-Maranga. However, the Chancay site was small and meager compared with the great aggregation of huacas in the middle of Lima Valley and the dense population that must have surrounded them. There may thus be wealth as well as time involved in this difference also.

Or again, a provincial differentiation may have been at work, such as has been discussed above in regard to prevalence of shapes and ground colors at Aramburú and Chancay.

That valley could differ from adjacent valley even within a culture and period is something that must never be forgotten, though we often lack the fullness of information to enable us to decide which features are respectively local, temporal, or functional.

Thus, negatively painted or reserved ware occurs chiefly in Interlocking association at Pachacamac, and in White-on-Red at Chancay, but so far has been lacking from all valley of Lima remains. So is the White-on-Red style absent—to date—from the whole valley of Lima; and apparently also any straight Coast Tiahuanaco, abundantly as this is represented on both sides of Lima at Pachacamac, Ancón, and—at least as base Epigonal—at Chancay. Chancay to date has given no cultural evidence of Inca infiltration. Supe has a complete gap in data between primitive Chavinoid and Tiahuanacoid. Cañete, so far as the record goes, has nothing till its presumable contemporary of Proto-Lima, Middle Cañete; then Tiahuanaco is lacking and there is nothing until a Late black ware variant of Chinchá. Some of these gaps will be filled as information grows. Nevertheless, it is already clear, first, that distinguishable variants of larger cultures were likely to grow up in each valley; and second, that successive cultures might flourish with varying concentration, emphasis, and success in even near-by valleys. This latter condition is evident on the northern coast also, and it will no doubt be found to obtain on the southern coast and in the interior, as soon as it is looked for.

Appendix I: Computation of Dimensions of Mud Bricks

MUD-BRICK DIMENSIONS COMPUTED FROM PHOTOGRAPHS

A. *Huaca 15, cemetery wall shown in figure 14 (see also tracing, fig. 15)*

<i>Distance</i>	<i>No. of bricks</i>	<i>mm.</i>	<i>Average mm.</i>	<i>Mean of averages</i>	$\times 22$ <i>= cm.</i>	<i>Rounded, cm.</i>
Middle dimension (width)						
a-b	1	5.2	5.2	5.35	11.77	12.0
c-d	2	11.7	5.8			
e-f	3	15.3	5.1			
h-i	3	16.6	5.5			
l-p	4	21.8	5.4			
n-o	2	10.2	5.1			
r-s	3	12.9	4.3	(2+1 small)		
Short dimension (thickness)						
g-h	6 (7?)	25.7	4.3	(3.7?; 4+2 med.)		
k-l	5	22.7	4.5	(1+4 med.)		
i-j	10	32.4	3.2	3.13	6.89	7.0
m-n	7	24.0	3.4			
q-r	8	22.5	2.8			
Long dimension (length)						
t-u	4	30.6	7.6	7.25	15.95	16.0
v-w	5	39.0	7.8			
x-y	3	19.4	6.5			
z-aa	2	14.3	7.1			

B. *Huaca 16, Excavation U, shown in figure 5 (see also tracing, fig. 6)*

Middle dimension (width)						
g-h	4	21.1	5.3	4.67	10.27	10.3
i-j	5 (3+2)	23.0	4.6			
k-l	11	48.2	4.4			
m-n	5	22.2	4.4			
Short dimension (thickness)						
a-b	7	18.2	2.6	2.7	5.94	6.0
c-d	9	23.6	2.6			
e-f	14	40.0	2.8			
Long dimension (length)						
o-p	3	22.7	7.6	7.3	16.06	16.0
q-r	4	28.1	7.0			

Appendix II: Proto-Lima Cloths from Maranga

By DWIGHT T. WALLACE

The lot of cloths, excavated by Dr. Kroeber at Maranga and kindly made available to me by Chicago Natural History Museum, consists of nineteen separate specimens from six of the bodies. The general condition of the lot is poor; not one piece has escaped rotting and discoloration, and all the best pieces are represented only by small fragments. Although the greatest proportion (and bulk) of the cloths are plain, there are scraps of four tapestries—one combined with a twill weave, one pattern weave, and one of a single-element technique; these are patterned in designs of two to four colors, mostly black, brown, and white, but also blue, yellow, and gray.

The specimens have been grouped by grave lot for analysis: a brief summary of this grouping and the nature of the cloths may be of aid.

Body P-L 103A: specimens 169402*a* (plain weave, not located) and *b* (many plain webs, stitched), and 169404*b* (netting, not located) and *c* (braid with wrapped loop).

Body P-L 104: specimen 169394 (plain cloth).

Body P-L 104A(?): specimens 169387*a* (plain cloth) and *b* (many plain webs, stitched).

Body P-L 105: specimens 169415*a* (tapestry and twill), *b* (narrow plain webs), and *c* (veneered yarns).

Body P-L 107: specimens 169388*a* (knotless netting with design) and *b* (plain web, rep).

Body P-L 110: specimens 169411*a* (tapestry), *b-d* (tapestry), *e* (tapestry), *f* (pattern weave), *g* and *h* (plain weaves); and 169412*a* (large plain piece with simple embroidery and contrasting plain weave border) and *b-d* (plain cloths).

Measurements in parentheses indicate incomplete dimensions; those without, loom dimensions. Incomplete dimensions are given as the greatest direct or indirect measurement. Most measurements are approximate, due to many obstacles, all relating to the poor condition of the webs. The warp-wise dimensions are given first.

Terminology for degree of twist is as follows: 5°, very soft; 10°, soft; 15°, medium-soft; 20°, medium; 25°, hard-medium; 30°, hard; 35°, very hard; super-twisted, creped.

Terminology for stitches follows O'Neale (1937, pp. 215–218) and O'Neale and others (1949, p. 140).

SPECIMEN ANALYSIS

Body P-L 103A

Specimen 169402b: Fifteen fragments of plain cloth, sewed together at various angles in a highly disorganized manner, some webs edge to edge, others superimposed up to four layers thick; (57) by (133) cm.; the largest web is (43) by (52) cm.

Yarn: Warps and wefts are cotton, single-ply, medium-soft to medium-hard S-twist, averaging 0.6 mm. in diameter, and light brown in color.

Construction: Plain weave. Counts for all webs vary closely around 9 warps by 6 wefts per cm. Weft selvages are plain; no warp selvages are preserved.

Stitchery: Sewing is used for various purposes. One raw edge is finished by a hem with turned-under edge stitched down. In one case the raw edges of two webs are joined by a fell seam in which the two webs are overlapped, both edges turned under, and each stitched down; the usual edge-to-edge selvage join also occurs. Tears in the web are stitched up. One interesting feature is a hole in one of the webs with a piece of fabric larger than the hole laid over it, the edges neatly turned under, stitched down, and then the edges of the hole stitched to the patch. All sewing is done in a whipping stitch spaced 0.4 to 1 cm. apart.

Specimen 169404c: Fragment of a braided cord with a yarn-bound loop on one end; probably a sling finger-hold.

Yarn: Braid strands are coarse wool, 2-ply, hard S-twist, 2 mm. in diameter, and dark brown-black in color. Wrapping yarns are fine wool, 2-ply, medium-soft S-twist, 0.4 mm. in diameter, and dark brown in color.

Construction: The cord is a circular braid of at least 4 strands, but possibly 8 originally. The loop is finished by a figure-8 wrapping of a group of 8 fine yarns around two groups of 2 heavy yarns each, the latter continuing to form the braided cord. The wrapping is 1 cm. wide and 0.5 cm. thick; the loop is 3 cm. on the inside when flattened. The original thickness of the braid cannot be determined.

Body P-L 104

Specimen 169394: Large ragged piece of plain cloth composed of two webs plus some loose fragments, (115) by (55) cm.

Yarn: Warps and wefts are cotton, single-ply, medium to hard S-twist, and pale brown in color; yarn diameters vary considerably, more so for wefts than warps, but average about 0.6 mm.

Construction: Plain weave, 10 warps by 6 wefts per cm. Counts vary according to diameter of elements, being higher when elements are finer. Warp selvages have three outer shots of 3 yarns each. Weft selvages are plain.

Stitchery: Weft selvages are sewed together with whipping stitches 6 mm. apart, which are drawn tight so that the seam is not flat.

Body P-L 104A (?)

Specimen 169387a: Two fragments of a plain web, bunched and rolled lengthwise, producing a knife-pleated effect. Rotted in spaced, cross-wise bands. Each is (14) by 31 cm.

Yarn: Warps are cotton, single-ply, hard S-twist, 0.35 mm. in diameter, and pale brown in color; wefts are the same except that they are finer, being 0.2 mm. in diameter.

Construction: Plain weave, 25 warps by 18 wefts per cm. Weft selvages are plain; no warp selvages are preserved.

Specimen 169387b: Three separate pieces, respectively composed of 4, 2, and 6 fragments of plain webs sewed together, some selvaige to selvaige, others superimposed at various angles with no apparent pattern. Dimensions of webs range from (39) by (35) cm. to a few cm. square.

Yarn: Warps are cotton, single-ply, both S- and Z-twist (in same web, grouped randomly), very hard spun with slight crepe, 0.35 mm. in diameter, and light brown in color; wefts are the same, except that they are all S-twist.

Construction: Plain weave. Warp counts on the various webs vary from 12 to 19 per cm.; wefts from 11 to 14. For any one web, the proportion of warps to wefts varies from 15 by 14 to 19 by 11 per cm. Warp selvages have the outer three or four shots of 3-ply yarns; weft selvages are plain.

Stitchery: Close and loose whipping stitches and a lacing stitch are used in different places to join two selvages edge-to-edge in a flat seam. Loose whipping and a running stitch are used to fasten down the edges (usually raw and turned under) of one web onto another. A loose whipping stitch is used to sew up tears; in such cases the raw edges are turned to one side so that the mend has one finished side.

Body P-L 105

Specimen 169415a: Many badly rotted fragments of web(s) combining tapestry and twill, the tapestry in two types of bands with different designs. The largest area of tapestry is (29) by 4.8 to 5.2 cm.; the largest area of twill is (10) by (3) cm. One fragment is pictured by O'Neale and Kroeber (1930, pl. 25, *c*); the twill is analyzed by O'Neale (1946, p. 291, pl. 50 and diagram 8).

Yarn: Warps (continuous for tapestry and twill) and twill wefts are cotton, 2-ply, hard Z-twist, averaging 0.35 mm. in diameter, and dark medium brown in color. Tapestry wefts are fine wool, 2-ply, medium S-twist, averaging 0.4 mm. (with much variation), and yellow, black, light yellowish brown, light orangish brown, and a medium-dark golden brown in color (with much variation in all colors, due to discoloration).

Construction: Tapestry and twill weaves. The tapestry employs common-warp locking and eccentric tapestry weaves; warps are in groups of 3 yarns; 4 to 5 warps by 24 to 32 wefts per cm. The tapestry areas with the "fish" design have a warp selvage with a loom-string of 3 loosely twisted yarns on one edge, with no heading strip; on the other edge, the tapestry warps continue into the twill weave. Both long edges of the interlocking step tapestry bands continue into twill weave areas. Both types of band run to the weft selvage. The original piece probably was mostly of twill weave with bands of tapestry with a "fish" motif across each end and with an interlocking step motif across the web somewhere in between.

The twill is herringbone, over-2-under-2, with a 45° wale reversed every 1 to 1.5 cm. and with an almost square count, averaging 34 yarns per cm. The 3-yarn warps in the tapestry are used singly in the twill areas.

Warp selvages, occurring on the tapestry areas only, have been described; weft selvages, occurring on both tapestry and twill sections, are plain.

Design: The "fish" design can be almost completely reconstructed from the various fragments (fig. 87, *a*). It is in at least two color schemes, yellow or light brown, both outlined in black and both on a yellow-brown ground; the centers of the small stepped figures seem to remain light brown in both schemes, while the space between the "fins" seems to contrast with the body color, being light brown(?) or yellow. The interlocking step motif (fig. 87, *b*) lacks the yellow, at least in its present discolored state, but adds a dark golden brown. Actually, many shades of all the colors occur, probably because of discoloration and dye-lot differences; but it is not impossible that more distinct colors were originally intended than have been recorded here.

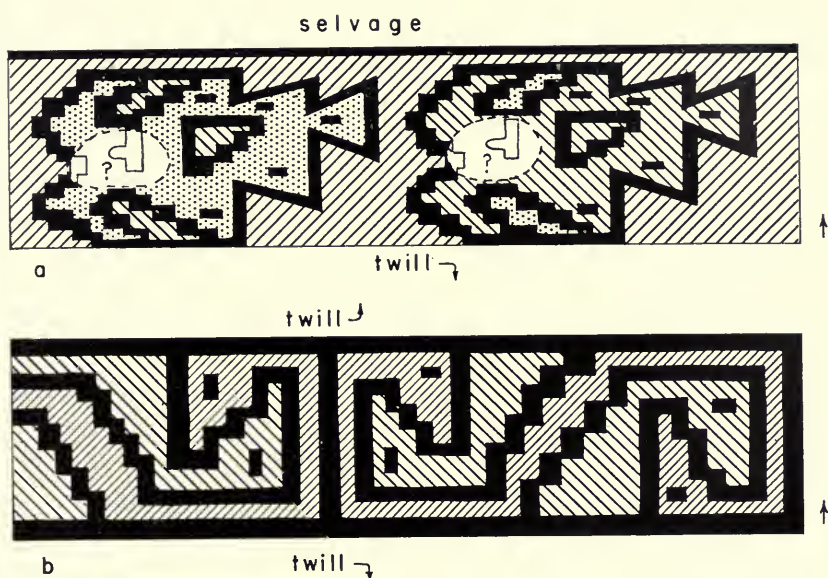


FIG. 87. Tapestry band motifs from specimen 169415a: "fish" (a) and interlocking step (b) motifs in yellow (stipple), three shades of brown (hatching), and black; $\times 0.6$.

Specimen 169415b: Three fragments of narrow strips of plain webs, each folded lengthwise twice and laid on top of one another. Each is (19) by 15.5, 15, and 16.2 cm.

Yarn: Warps and wefts are cotton, 2-ply, hard S-twist, averaging 0.4 mm. in diameter, and dark medium brown in color.

Construction: Plain weave, 13 warps by 12 wefts per cm. Weft selvages are plain; no warp selvages are preserved.

Specimen 169415c: Various fragmentary lengths of veneered threads in red, yellow(?), and black, the longest being 7 cm. The veneer consists of 2-ply, wool yarns very closely wrapped around a core yarn (which disintegrates when exposed), forming an element 2 mm. thick. These were probably used in a decorative fringe.

Body P-L 107

Specimen 169388a: Two fragments of a tubular, round-bottomed bag of knotless netting with a simple geometric design in two colors; both about 15 cm. long; the more complete fragment is 15 cm. wide. One fragment is pictured by O'Neale and Kroeber (1930, pl. 25, b). The pattern is not discernible there because of discoloration of the yarns.

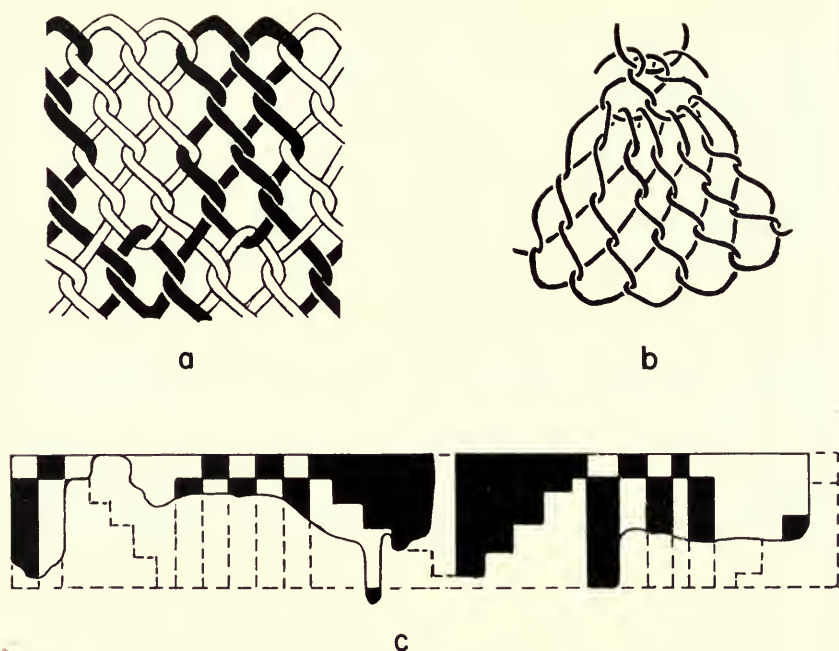


FIG. 88. Knotless netted textile, specimen 169388a: diagrams of weave (a), method of starting (b), and design (c); $\times 0.7$.

Yarn: Elements are wool, 2-ply, medium Z-twist, 2 mm. in diameter, compound spun of 2-ply, S-twist plies, each 2-ply, Z-twist; there is some variation in the number of sub-plies. Colors are black and a light color, probably white.

Construction: Knotless netting, single element technique, with a simple, looped-over bind (fig. 88, a). The bottom of the bag was started on a circle of yarn, with increases in the number of loops per row up to the beginning of the design (see fig. 88, b); there is one more increase when the sides of the bag begin, with from two to five loops to every one in the preceding row (the lowest row in the diagram).

Design: Two colors of yarn have been worked into a checker and step design in the sides of the bag (fig. 88, a); the design is reconstructed diagrammatically (fig. 88, c).

Specimen 169388b: Many fragments of a plain rep weave, representing at least two webs. The largest piece is (17) by (14) cm.

Yarn: Warps are mixed weight wool, single-ply, hard Z-twist, 0.8 mm. in diameter, and dark brown in color; wefts are the same, except that their diameters average somewhat thicker (0.85 mm.).

Construction: Plain weave, warp face (rep), 14 warps by 4 wefts per cm. Warp selvages have two outer shots of 3 untwisted yarns, followed by a shot of a heavier, single-ply yarn, followed by a shot of 2 yarns of regular size; weft selvages are plain.

Stitchery: Two weft selvages are joined edge-to-edge by whipping stitches spaced 1 cm. apart.

Body P-L 110

Specimen 169411a: Fragment of tapestry border; (9.1 to 9.6) by approximately (17) cm., the former including 7.9 to 8.4 cm. of border plus 1.2 cm. of heading. The plain body of the cloth is represented only by a scrap.

Yarn: Warps are cotton, 2-ply, very hard S-twist, 0.7 mm. in diameter, and a pale brown to cream-white in color. Some warps are two-tone, one ply being light brown and the other white; all warps may have been originally two-tone. Heading wefts are cotton, single-ply, medium to medium hard Z-twist, 0.4 mm. in diameter, and pale brown in color. Tapestry wefts are wool, 2-ply, soft to medium S-twist, 0.4 mm. in diameter, and cream white, yellow, medium brown, and black in color.

Construction: The heading is plain weave, 8 warps by 8 wefts per cm. The tapestry weave is done over paired yarns. Wefts are interlocked at color boundaries by a combination of weft interlocking with a common-warp lock (fig. 90, *c*). The thread count is 4 warps by about 44 wefts per cm. The small scrap, which may represent the body of the cloth to which the tapestry was a border, has yarns of hard S-twist, 0.4 mm. in diameter and of a natural pale brown cotton. A thread count cannot be taken, but the indication is that the weft count was much higher than the warp, more than the differences in yarn diameters would account for. The warp selvege consists of a loom-string of 3 yarns followed by two shots of 2 yarns each; these yarns are the same as the heading wefts in composition. Weft selvages are plain. The loom-string extends for some distance out of the fabric at the one complete corner, loops back, and is worked into the fabric.

Design: The portions of the design which are preserved show stepped and double-curved geometric motifs outlined in black (fig. 89). An interesting feature in relation to the design is the occurrence of 4 dark brown warps which are spaced 5, 6, and 5 cm. apart as indicated by the arrows in the diagram. These suggest guides for the weaver in working in the design, although, if so, they were not followed exactly.

Specimens 169411 b, c, d: Three fragments of tapestry, possibly from the same web. Sections of long, free warps are exposed and in a good state of preservation, making it difficult to explain why the wefts are missing. Fragment *b* is (18) by (18) cm., *c* is (16) by (26), and *d* is (10) by (9.5).

Fragments of the warp selvage with heading strips 1 cm. wide are preserved on pieces *b* and *c*.

Yarn: Fragments *b* and *c* each have partly 4-ply, whitish warps and partly 2-ply warps with one ply white and one ply light brown. Both types are cotton, hard S-twist, and about 1 mm. in diameter. Fragment *d* is too discolored to tell whether the warps were two-tone, but they are 2-ply. All

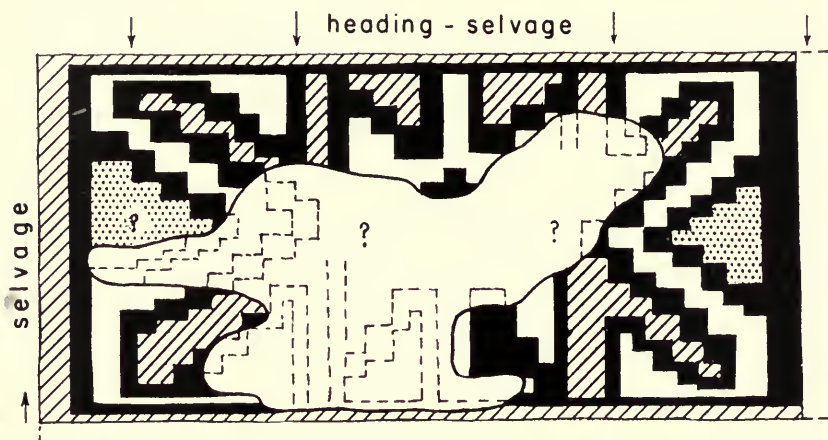


FIG. 89. Tapestry border, specimen 169411a, in white, yellow (stipple), brown (hatching), and black; $\times 0.6$.

the tapestry wefts are cotton, 2-ply, hard S-twist, 0.5 mm. in diameter, and white, gray, light brown, or dark brown in color. Wefts in the heading are cotton, single-ply, hard Z-twist, 0.45 mm. in diameter, and light brown.

Construction: The heading strips are plain weave with 9 warps by 9 wefts per cm. In the tapestry weave, wefts lock around a common warp and sometimes around each other in addition (fig. 90, *c*). Fragments *b* and *d* have some color areas done in paired wefts. All warps are paired yarns. The count averages 4.5 warps by 28 wefts per cm. The doubled weft areas average 16 shots, totaling 32 yarns per cm. The warp selvage on *b* consists of a loom-string of three single-ply and two 2-ply yarns untwisted followed by two shots each of a 2-ply yarn. The warp selvage on *c* is a loom-string of two 3-ply yarns followed by two shots of one 3-ply yarn. These selvage treatments constitute the major difference between the fragments, arguing against their being from one web; but they might represent different treatments of the opposite ends of one web.

Design: The incomplete design shows various stepped-line figures in white outlined in brown on a gray or light brown ground (fig. 90, *a*, *b*). The fish or snake head of piece *c* is the most notable feature. The design of

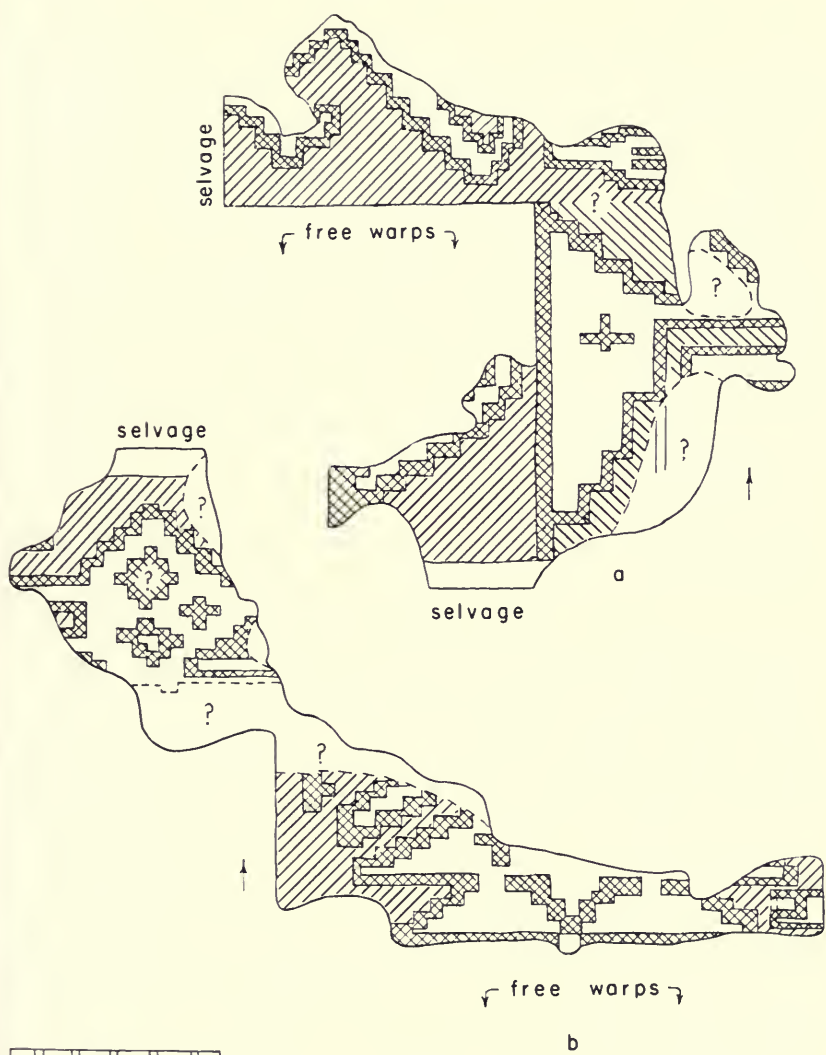


FIG. 90. Tapestries: (a) specimens 169411*b*, and (b) 169411*c*, in white, gray, and some light brown (hatching) and dark brown; and (c) diagram of tapestry warp-weft locking; $\times 0.5$.

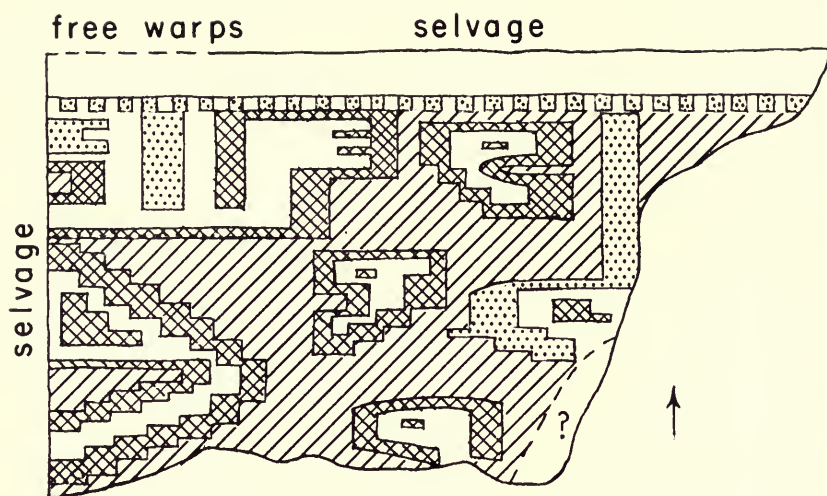


FIG. 91. Tapestry, specimen 169411e, in white, light brown (diagonal hatch), dark brown (cross-hatch), and blue (stipple); $\times 0.7$.

fragment *d*, which is badly discolored, also shows stepped figures in the same colors.

Specimen 169411e: Well-preserved fragment of corner of kelim tapestry with four-color design; (8.7) (including 1 cm. of heading) by (9.5) cm.

Yarn: There are three kinds of warp yarns, each occurring in a group. One group is 2-ply, Z-twist, 0.7 mm. in diameter, and medium brown in color; another is 2-ply, S-twist, 0.7 mm., and pale brown in color; and the third is 2-ply, S-twist, 1 mm., and pale brown or off-white in color. All three types are of cotton and of medium-hard to hard twist. Heading wefts are cotton, 2-ply, hard S-twist, 0.5 mm., and light brown in color. Tapestry wefts are cotton, 2-ply, hard S-twist (a few Z-), 0.5 mm., and white, medium blue, medium-dark brown, and a dyed(?) light brown (varying from pinkish to grayish) in color.

Construction: Kelim tapestry, with some warp locking to hold together long slits. A number of slits occur in the solid-colored design ground, indicating that it was woven in sections rather than all at once. The count averages 4 warps by 30 wefts per cm. Warps are paired in the tapestry section; some ground areas of the design are done in paired wefts. There is a horizontal strip of 4 paired wefts of alternating blue and light brown in a closely battened plain weave, producing a row of small blue dots along the top edge of the tapestry section.

The heading strip presents a curious problem. The 3 cm. of heading at the corner of the web are different from the rest of the heading in that the

warps are darker brown and extend free with raw ends for 3 or 4 cm. beyond the normal selvage, and the wefts in this section are not continuous with those in the rest of the heading, the sections being locked together by having two common warps. No explanation for this procedure is evident. The heading is plain weave, about 8 warps by 8 wefts per cm. The warp selvage has three shots of three 2-ply yarns each; the weft selvage is plain.

Design: The various design elements are in white outlined in a medium blue or medium-dark brown on a light brown ground (fig. 91). A brownish gray color occurs in the center of the stepped figure on the left in the diagram; this may have been intended as a color distinct from that of the ground, but may as well be due to dye-lot differences.

Stitchery: A few paired yarn lengths that pierce the warp selvage are probably the remains of stitches.

Specimen 169411f: Fragment of the edge of a plain cloth with weft pattern weave border, producing a three-color design of interlocking snakes or fish (see O'Neale and Kroeber, 1930, pl. 25, a); (7.5) by (9.5) cm., the former including 1 cm. of heading, 4.2 cm. of pattern weave, and 2.2 cm. of the body of the web, plus free, raw warps extending up to 13 cm.

Yarn: Warps are 2-ply, hard S-twist, averaging 1 mm. in diameter, and two-tone in color, one strand being white and the other light brown, although a few warps appear to be monochrome brown. Heading wefts are 2-ply, medium to medium-hard S-twist, 0.7 mm., light brown in color. Pattern weave wefts are 2-ply, medium S-twist, 0.5 mm., and white, gray, and dark brown in color. Wefts in the body of the web are single-ply, medium-soft Z-twist, 0.5 mm., white in color. All yarns are cotton.

Construction: The heading and body of the web are plain weave, 6 warps by 6 wefts and 6 warps by 8 wefts per cm., respectively. The design is in double-face, weft-pattern weave, with a supplementary weft. At any one point, a yarn of one of the three colors is on top, another on the bottom, while the third is hidden between. This procedure is best understood by referring to the cross-sectional diagram (fig. 92, b). The white and gray areas are brown on the reverse, and brown areas are either white or gray; by this method the interlocking motif is identical in relative color placement on both sides whereas the center diamond is reversed.

Design: An interlocking fish or snake head design is created by this pattern weaving (fig. 92, a). Part of the design is obliterated by discoloration so that the design area is smaller than the actual fragment. However, more of the design has been reconstructed in the figure.

Specimen 169411g: A plain fragment, (2 to 2.5 cm.) by 26 cm., with raw warps extending up to 23 cm.; probably a heading strip for tapestry work.

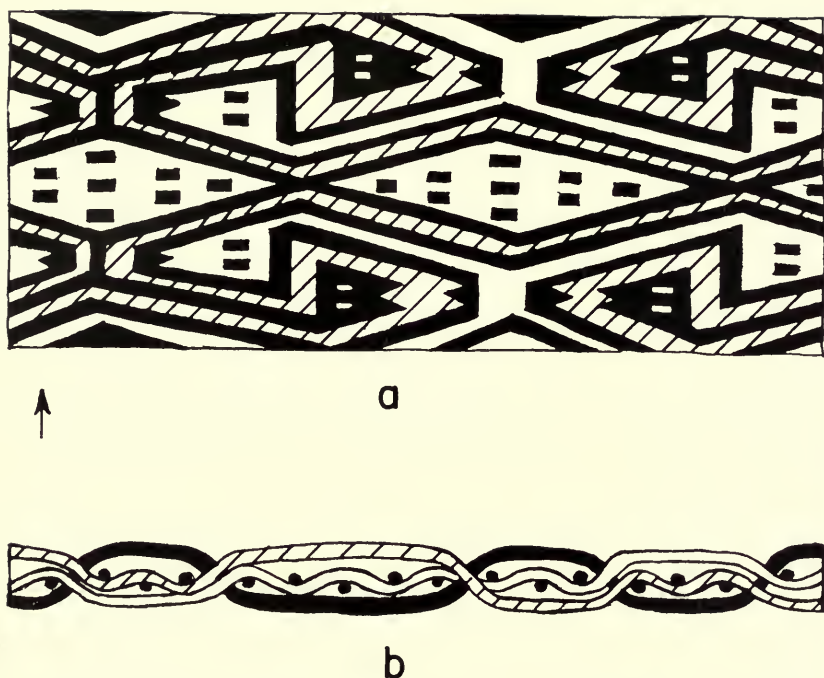


FIG. 92. Weft pattern weave border, specimen 169411f: design (a) in white, gray and dark brown; and cross-sectional diagram (b) showing method of two-face color changing; $\times 1$.

Yarn: Warps are cotton, 2-ply, medium S-twist, 1.1 mm. in diameter, and light brown in color; wefts are cotton, single-ply, medium-hard Z-twist, 0.6 mm., and also light brown in color.

Construction: Plain weave, averaging 7 warps by 7 wefts per cm. The warp selvege has a loom-string of three 2-ply and two single-ply yarns; weft selvages are plain.

Specimen 169411h: Fragmentary plain cloth, (39) by 48 cm.

Yarn: Warps and wefts are cotton, single-ply, very hard S-twist, and light brown in color. Warps are 0.5 and wefts 0.3 mm. in diameter.

Construction: Plain weave, averaging 12 warps by 13 (10 to 15) wefts per cm. The warp selvege has two 4-ply shots, both of which extend beyond the end of the weaving, apparently both being used as a loom-string.

Specimen 169412a: A large ragged piece of two plain webs sewed together end-to-end with remains of a single embroidered decoration, plus remains of a third, darker web sewed on one long edge of these webs with indica-

tions that a similar web had been sewed on the opposite edge; (229) cm.—including two webs, (91) and (138) cm. long each—by 67 cm.; the largest fragment of the darker web is (12) by (24) cm.

Yarn: Warps and wefts in the main webs are cotton, single-ply, slightly creped S-twist, and pale brown in color; warps average 0.3 mm. in diameter, wefts 0.35 mm. Warps and wefts in the border web are cotton, single-ply, hard to very hard S-twist, 0.35 mm., and a medium-dark brown in color.

Construction: The main and border webs are all plain weave. Count averages 12 warps by 13 wefts per cm. for the main webs, 18 warps by 14 wefts for the border web. The warp selvage on one of the main webs is plain, the only difference being that the last three shots are olive-brown. The warp selvage on the other main web has two shots, each of a 2-ply, S-twist yarn. All weft selvages, including that of the border web, are unelaborated.

Stitchery: The warp selvages of the main webs are stitched together by a very close whipping stitch, forming a raised ridge. The border web is hemmed, the selvage being turned under and whipped down, then the web whipped to the edge of the main web at a distance of 6 cm. from the hemmed edge. Stitches average 1.1 cm. in length.

The embroidery employs a series of close figure-8 stitches which create a raised, solid band resembling a 3-strand braid. The work is done over a long tuck, giving additional body to the finished product, which is about 0.5 cm. in thickness. The stitch resembles that shown by d'Harcourt (1934, fig. 74, C, p. 105), differing in that both ends of the figure-8 enter the cloth, which one could expect since the stitch is done over a raised tuck of cloth. At one time a row of stitches extended the full length of the two main webs at a distance of 13.5 cm. from the weft selvage opposite that which now has remains of the border web. Another row occurs 14.7 cm. from the same edge but on the opposite side of the web. There is no trace of corresponding embroidery near the other edge; the only indication that the original textile was symmetrical, with dark brown border webs on each side, is the remains of needle-holes and scraps of sewing yarns on one long edge.

Specimen 169412b: A ragged plain web with parts of all selvages preserved, laid flat on specimen 169412a and knotted to it (or another web) at one corner. A threaded, tubular, white shell bead was loose inside the whole wadded and much-rotted bundle; 134 by 43 cm.

Yarn: Warps and wefts are cotton, single-ply, very hard S-twist, and a pale brown in color; warps average 0.3 mm. in diameter, wefts 0.4 mm.

Construction: Plain weave, 19 warps by 12 wefts per cm. Warp selvages have four shots of a 2-ply yarn each; weft selvages are plain.

Specimen 169412c: Fragment of a plain web, finely pleated lengthwise and rotted in cross-bands; (96) by 48 cm.

Yarn: Warps and wefts are cotton, 2-ply, very hard S-twist, 0.4 mm. in diameter, and pale brown in color.

Construction: Plain weave, 16 warps by 9 wefts per cm. Weft selvages are plain; no warp selvages are preserved.

Specimen 169412d: Fragment of a plain cloth, (116) by (47) cm.

Yarn: Warps and wefts are cotton, 2-ply, medium Z-twist, 0.4 mm. in diameter, and pale brown in color; some wefts are S- as well as Z-twist.

Construction: Plain weave; 14 warps by 8 wefts per cm. Warp and weft selvages are plain; yarns of the last three shots in the warp selvege are olive-brown in color.

Stitchery: There are needle holes 0.5 cm. apart along one weft selvege, some with fragments of sewing thread in them.

GENERAL ANALYSIS

Fibers

Cotton and wool are the fibers used in this lot of Proto-Lima textiles. Cotton, the more predominant, is used for all plain cloths, for the pattern weave, in two out of four cases for the wefts, and in all cases for the warps of the tapestries. Wool is used exclusively for only one loom textile—the one warp-face cloth—and in combination with cotton in two of the tapestries; in non-loom textiles, wool is used in two cases: a netted bag and a braided and wrapped sling finger-hold. The proportion of textiles of cotton, wool, and both fibers is 14:3:2.

The wool fibers in the tapestry wefts and sling wrapping show relatively small diameters and faint or no medullas under a microscope; if these characteristics are interpreted as being those of vicuña wool, its occurrence correlates with that among the Proto-Lima wool textiles dug by Jijón y Caamaño (1949, pl. 64, fig. 19, p. 387). The wool in the sling braid has fibers of about twice the diameter of the finer wool, with heavily pigmented medullas, either alpaca or llama in origin.

Yarns

That initial twist of all plied yarns, that is, the twist of the strands, is opposite in direction from that of the secondary twist as given in the analysis of specimens. Taking this into account, the initial spinning of yarns, whether intended for use in the spinning of plied yarns, or singly, as spun, shows almost exactly as many spun in one direction as in the other. On the

other hand, the yarns as used, singly and plied, show a fair predominance of S-twisting. It is too much to believe, however, that the finished yarn is the criterion for hypothesizing preferences in direction of twist—that single yarns were spun in one direction when they were to be used for plied yarns and in another when they were to be used singly. The conclusion for this sample, then, is that neither direction of twist was preferred more than the other. A more positive statement can be made concerning the relation of direction of warp twist to weft twist: In any one web, both warps and wefts are twisted in the same direction, either S or Z, unless single- and double-ply yarns are combined in one web, in which case both warps and wefts twist oppositely. Partial exceptions to this are the one plain cloth (169387*b*) which has warps of both twists, and one tapestry (169415*a*) in which the heading wefts twist the same as the warps, although the tapestry wefts twist oppositely. The only cases of 1- and 2-ply yarns combined in one web are in the heading strips of the tapestries and of the pattern weave.

The degree of yarn twist seems to correlate with the fiber used: the 2-ply wool yarns, of all diameters, vary from soft to medium twist while the one case of single-ply wool yarn is of a hard twist. Cotton yarns range from medium-soft to slightly creped in twist, but strongly average hard to very hard. Degree of twist does not correlate with yarn diameter but does correlate to some extent with number of plies, in that single-ply yarns are twisted tightly for strength.

Yarn diameters vary from 0.2 to somewhat over 1 mm., one exception being the woolen netted bag with triple-compound yarns, 2 mm. in diameter. The finest of all the yarns is single-ply cotton, while the finest wool yarns are twice as large; but the latter are 2-ply, so that at least their strands match the cotton yarns in fineness. Single-ply cotton yarns range from 0.2 to 0.6 mm.; 2-ply cottons also fall within this range with the notable exception of the specialized tapestry warps, which average 1 mm. in diameter. Two-ply wool yarns used exclusively for tapestry wefts are consistently 0.4 to 0.5 mm. in diameter; single-ply yarns of the woolen warp-face cloth are 0.8 to 0.85 mm. It should be noted that the yarns in the coarser textiles vary somewhat in their diameters, while the finer cloths have very even yarns.

The two-tone yarns are notable in the unique texture they give the finished cloth. They occur in the present sample as warps in two tapestries (169411*a*, *b*) and one pattern weave (169411*f*). In only the pattern-weave specimen does it seem that the warps are visible enough to postulate their having been used purposely. Two-tone yarns occur in Early period textiles from Paracas Necropolis, Nazca Cahuachi, and Ocucaje for a total of 6 per cent, in Middle period at Cerro del Oro and Aramburú for 1 per cent (in-

cluding one of the present examples), and in Late period from Nazca and Ica for 1 per cent (see O'Neale, 1942, Table 7, p. 168, and Table 12, p. 176; also O'Neale and Kroeber, 1930, Basic Table).

Weaving Techniques

Plain Weave: Eleven out of the 17 loom-woven fabrics are entirely plain weave, including one warp-face cloth. Of the remainder, only the twill and tapestry piece (169415a) entirely lacks plain weaving as an additional technique for heading or body of the cloth. Specimen 169387a is by far the finest-textured of the all-plain weave cloths; its wefts are the finest of all the yarns in the lot, and its relatively high thread count stands out from those of the other plain weaves. At the other extreme, specimens 169394 and 169402 have heavy yarns of uneven diameter and by far the lowest of the counts. The other plain weaves are relatively consistent in weight of yarn and count. What the weavers of these plain cloths seem to have visualized as a "fine" plain weave, if specimen 169387a and the border web of the embroidered cloth, 169412a, can be taken as examples, is a firm-bodied, even-textured cloth of fair weight, rather than a "filmy" texture of loose body and light weight.

The main points of note in the plain-weave heading strips of the tapestries and pattern weave are the relatively low thread counts and the use of single-ply wefts with 2-ply warps of much larger diameter. These features are also present in the body weave of specimen 169411f, which has the pattern weave border; they are combined here with the use of two-tone yarns. This combination is particularly interesting in that it strongly suggests that the finer wefts and low thread count were purposely employed to permit the two-tone nature of the yarns to have a definite part in the finished visual effect; such is not the case for the other two occurrences of two-tone yarns, where they were apparently visible only in the narrow headings.

There remains but to mention the one warp-face cloth, which is not only unique in its weave but also in its being of coarse wool and having heavy yarns and a rough, although even, texture.

Tapestry: Of the 17 loom-woven textiles, four are in tapestry technique, including one occurrence of kelim, one weft interlocking with a common warp, and two common-warp lock, with one additional use of eccentric wefting in the same web with common-warp locking. All but one of the structurally patterned cloths in the present Maranga lot are tapestry; this proportion does not agree with Jijón's Proto-Lima textiles (1949, pp. 407-422), among which there are five tapestries and seven brocades making up the total of structural patterning. All-cotton tapestry is as frequent as wool

tapestry in the present lot; it occurs in only one of Jijón's five Proto-Lima tapestries.

In general, the quality of the tapestries is not particularly notable: the yarns used are not especially fine; the method of locking used, with the exception of the kelim, creates blurred edges on the color areas; and such short cuts as the use of paired wefts give a definite impression of lack of interest in very fine workmanship. The curious occurrence of long, well-preserved warps which have no wefts in specimens 169411*b* and *c* gives an impression of unfinished or practice work, while the warp extensions and weft interlocking in the heading and the exposed yarn ends in the tapestry wefts of 169411*e* suggest either carelessness or lack of planning.

Twill: The rare occurrences of this weave in Peru have been discussed by O'Neale (1946). She covers 23 examples, eight from Moche, seven Chancay White-on-Red or Interlocking, one Proto-Lima (the present example), two Middle Cañete, one Late Ancon, three Late Lima, and one Late from Nazca (O'Neale, 1946, p. 268). To those may now be added 11 twills from the Gallinazo period and four from the Mochica period of Virú on the northern coast (Strong and Evans, 1952; see p. 359 for Junius Bird's commentary on the twill weaves). The herringbone twill in the present lot is notable for its fine, subtly patterned texture.

Pattern Weave: The single example of this weave is the weft-float border of the plain-weave cloth, 169411*f*. The design is skillfully done in a double-face, three-color, supplementary weft patterning. Pattern weaving was not found by Jijón (1949, pp. 407-422) at Maranga among his Proto-Lima textiles; instead, brocade was the other patterning technique besides tapestry. It is not impossible, however, that some pattern weaves were mistaken for brocades.

Single- and Multiple-Element Techniques: Single-element construction is represented by the knotless netted bag, 169388*a*. The technical term for this particular type of knotless netting (fig. 88, *a*) has not been standardized. D'Harcourt (1934, p. 87) speaks of "spires enfilées les unes dans les autres," the Bühler-Oppenheims (1948, p. 94) term it "einfaches Einhängen"; these roughly suggest English terms such as "spiral netting" and "simple looped-over" or "plain-loop netting." The only other examples of this type of knotless netting with which I am familiar are two bags from the central coast pictured by d'Harcourt (1934, pl. 59, p. 2, and fig. 54), the design of one of which is similar to the Maranga example, although more simple.

Ornamental Stitchery: The occurrence of embroidery on specimen 169412*a* makes up the sole entry under this heading. One type of stitch is used—a figure 8—in a continuous line, one on each side of the web; done in a plain brown yarn, the design of this embroidery is very simple.

Functional Stitchery: Sewing is used to join webs together to make larger cloths in seven of the 17 loom-woven textiles. This usually takes the form of an edge-to-edge seam that is sewed with a loose whipping stitch when the edges are weft selvages and a very close whipping stitch (but occasionally also a loose one) when the edges are warp selvages. The reason for this difference is not apparent. The loose stitch makes a flat, unobtrusive seam, while the tight stitch makes a welt; both, however, are used in the middle of cloths.

The exception to the above method of joining edges as well as sewing of different functions occurs on the two specimens made up of a great number of webs, 169387*b* and 169402*b*, and is the result of the number of torn or cut edges of these webs. Aside from rotting, raw edges are unusual among Peruvian textiles and are undoubtedly explained here by the fact that the specimens were obviously intended for very utilitarian purposes. One edge-to-edge joining of raw edges is accomplished by a felled seam; free raw edges are hemmed with turned-under edges, and all other raw edges are turned under before being stitched. Both specimens have sewed-up tears and one (169402*b*) has a neatly patched hole. The significance of all this is, first, that the Peruvians did deal with worn or torn webs and, second, that in so doing they showed their usual skill and regard for neat workmanship. (See O'Neale and others, 1949, pp. 140-141, for a discussion of stitchery, patching, and mending.)

In addition to the above examples of functional stitchery, specimen 169312*d*, a plain web, has traces of stitches and needle holes in one selvage; specimen 169411*c*, a tapestry, has fragments of what must be sewing threads on one selvage; and specimen 169412*a*, the embroidered piece, had the apparently intact weft selvage of the border web hemmed.

Besides the more frequent whipping stitch, a running stitch is sometimes used to fasten one web down onto another, and a lacing stitch is used for a very short length of edge-to-edge selvage joining (both 169387*b*).

Sewing elements are all close to 0.7 to 1 mm. in diameter, but are varyingly composed of 1-, 2-, or 3-ply yarns used singly or in pairs. Loose sewing averages 1 cm. in stitch length, and is quite consistent within each web; tight whipping of warp selvage joins in as close as possible. Most of the whipping spirals in a Z direction.

Loom Set-up: The manner in which the loom is warped affects the warp selvages and dimensions of the finished web. Loom-strings, which are used in binding the warps to the loom beams and generally remain in the finished web, vary in composition among the 21 different warp selvages preserved on 14 of the specimens; in 17 of these cases, the loom-string and usually from one to three of the adjacent wefts are heavier than the other

yarns in the web. Their composition varies considerably in number of plies and groupings of yarns, although their size is never more than about twice the size of the regular wefts. Since all weft selvages are perfectly plain, having no variation in yarn size or weave, it is difficult to distinguish warps from wefts in the infrequent cases where the warp selvages are also just as plain, such as in specimens 169412*a* and *d* of the present lot. Such warp selvages might be produced by pulling out the loom-string after the web has been removed from the loom; this is suggested in specimen 169412*d* by the fact that the outer weft shots are somewhat more widely spaced. The alternative is that a loom-string the size of the regular wefts was used. Such a procedure seems unlikely in a web like 169412*d*, where the outer shot is of a rather weak, single-ply yarn; however, since the last shots are of a different color and direction of twist, all three yarns may have been used as loom-strings.

The greatest complete length representing the original loom dimension is 134 cm. for 169412*b*; the greatest complete width is 67 cm. for 169412*a*, which also has the greatest incomplete length of 138 cm. The narrowest complete webs are the three webs of 169415*b*, which are 15, 15.5, and 16.2 cm. wide. The only web with two complete dimensions is 169412*b*, which is 134 by 43 cm.

Design and Color

The motifs of the patterned textiles have been shown (figs. 87–92). The sampling is too small to make many general statements. The stepped technique used here in the tapestries for diagonal lines gives a distinctive, geometrical effect which can be seen also in some of the Maranga tapestries of Jijón (1949, pl. 64, fig. 18 [text fig. 204] and pl. 79, fig. 11). The double-curve motif in tapestry 169411*a* (fig. 89) is present in some of his brocade patterns (Jijón, 1949, text figs. 209 and 211). There is nothing among Jijón's textiles that compares with tapestry 169411*e* (fig. 91), which stands out in the present lot also. The pattern weave of interlocking fish or serpents can be compared with similar designs found by him in brocade and tapestry (Jijón, 1949, pl. 72, fig. 10, and pl. 76, fig. 3).

In most of the present lot of tapestries, the ground is a light brown, the outlining is in black if wool and dark brown if cotton, and the figures are white, yellow, or light brown; the occurrence of blue for outlining is unique to specimen 169411*e* and of gray for the background to specimen(s) 169411*b*, *c*. Gray is again used in the pattern weave example, along with white and dark brown, making a total of two occurrences for this color. The majority of the all-plain cloths are badly discolored, but were undoubtedly a natural pale brown, now with varying yellowish to grayish

tings; exceptions are one cream white specimen (169387*a*) and two dyed(?), rich brown specimens (border of 169412*a* and 169415*b*). Colors used for yarns in decorative weaves are all dyed, possibly also including the light browns; whites in the two cotton tapestries are very pure where not discolored. The one four-color tapestry, specimen 169415*a*, has the most unusual color scheme, but is so badly discolored, except for one fragment of the "fish" motif, that only a guess at the original colors can be made.

Jijón has given the colors for all of his Maranga textiles. The main point of note in his material is the frequent use of red in the tapestries, brocades, and embroideries, and blue in some brocades and embroideries, but particularly in the gingham. Red is limited mostly to his wool fabrics, and blue to cotton, but neither exclusively. Green apparently occurs on one wool brocade, and black-dyed cotton on two other specimens (Jijón, 1949, pl. 55, figs. 1 and 2); both cases are unusual for the Maranga lot.

Use

The fragmentary nature of most of the textiles makes interpretation of their original function very difficult. Specimen 169412*a* might have been a mantle, considering its dimensions and composition. The many-webbed plain weave pieces, 169387*b* and 169402*b*, are undoubtedly remains of mummy wrappings which were stitched into coverings that conformed to the irregular shapes of the bodies; this is the only explanation for the irregular angles at which the webs are sewed to each other. Specimen 169404*c* is very probably the finger-hold of a sling. It would seem that the obviously intentional pleating of specimens 169387*a* and 169412*c*, along with their having rotted in horizontal bands, should give some clue to their use; but none is apparent. The remainder of the webs, including all the patterned ones, are too incomplete to postulate original use.

CONCLUSIONS

Because of the small sample represented by the present lot of textiles, few generalities concerning Proto-Lima textile art could be profitably presented here. By including the textiles of Jijón from Maranga and those of Uhle from Nievería in the adjoining Table 8, total occurrences for the Proto-Lima period can be computed, in order to bring up to date the figures of O'Neale in her Basic Table of 1930; the twenty textiles entered by her under "Early" Lima included the six of Uhle from Nievería (Gayton, 1927, pp. 322-324) and fourteen of the textiles from the present lot. These fourteen were not individually identified and described by O'Neale in

TABLE 8.—PROTO-LIMA TEXTILES

	Maranga (Kroeber)	Maranga (Jijón)	Nievería (Uhle)	Total
Total specimens	19	38	6	63
Yarns:				
Cotton alone	14	21	0	35
Wool alone	3	8	4	15
Cotton and wool	2	2	2	6
Bast, mixed	0	7	0	7
Loom weaves, total	17	25	5	47
Plain weave	16	13	2	31
Tapestry, total	4	5	3	12
Kelim	1	?	2	(3)
Eccentric	1	?	0	(1)
Weft interlock	0	?	1	(1)
Common-warp lock	1	?	0	(1)
Both locks	2	?	0	(2)
Twill	1	0	0	1
Pattern weave, 2-face, weft float	1	0	0	1
Non-loom weaves, total	2	13	1	16
Netting:				
Plain-looped	1	0	0	1
Half-hitch	0	1(?)	(1)	2(?)
Knotted	0	1	0	1
Plaiting	1	11(?)	0	12(?)
Figure-8 warp	1	?	0	(1)
Structural color of decoration:				
Warp stripe	0	2	0	2
Weft stripe	0	2	0	2
Warp-weft stripes	0	4	0	4
Superstructural decoration:				
Brocade	0	7	0	7
Embroidery	1	3	1	5
Figure-8 stitch	1	?	0	(1)
Needle-knitting	0	?	1	(1)
Functional stitchery	7	?	0	(7)
Devices to vary effect:				
Two-tone yarns	3	?	0	(3)
Loose battening (sheer)	0	3	0	3
Surface decoration:				
Painting	0	6	0	6
Tie-dyeing	0	1	1	2

1930; she listed only totals from them in her Basic Table. In the tabulation on page 147, I have therefore omitted O'Neale's figures on these fourteen and have substituted completely different figures based on my piece-by-piece analysis made in the foregoing pages. The Nievería specimens are entered on the basis of the specific information given in the publications of Gayton and O'Neale. (Gayton, 1927 [analysis by Nelson]; O'Neale and Kroeber, 1930, p. 55, pls. 26 and 27. There are some discrepancies between the two sources; personal examination of four of the six specimens verified O'Neale's description of counter-paired half-hitching and double-face embroidery with a needle-knitting stitch.) The table has been abbreviated and slightly rearranged and changed from O'Neale's original one in order to best accommodate the present lot of textiles. I have been unable to reconcile some of O'Neale's entries with the available data, which are fairly complete; examples of this are the gauze, kelim and eccentric tapes-try, and flat braid entries. Lack of some data on Jijón's textiles has made the general totals less conclusive in spots, as is indicated by the parentheses and question marks. In adding up the various techniques, it should be remembered that more than one technique can occur on a specimen.

My thanks are due Dr. A. H. Gayton of the University of California, for having read and criticized this appendix.

Appendix III: Air Photograph of the Maranga Pyramids

In 1953, Mr. Louis Stumer on behalf of Dr. Richard Schaedel secured for me from the Servicio Aerofotográfico Nacional of Peru an air photograph showing the archaeologically "productive" mounds 15 and 16 of the Maranga group. A portion of this air map is reproduced (fig. 93). The scale of the original is 1:4000; the engraved figure is half size, or 1:8000. The white line marked "120,000E" runs true north and south. The photograph was made about ten years ago.

The Lima-Callao highway formerly known as Avenida Progreso runs almost due west across the figure a little above its middle. It is now bordered by trees which were wholly lacking in 1925. To the north of it the great Huaca 16 is visible as a light rectangular area about 300 meters long, with a white triangle and "S-160" lightly drawn on near the mound's southern end. It will be noted that the axis of the pyramid is not north-south but some 24° to 27° to the right, or close to north-northeast-south-southwest. This declination is as I had suspected (p. 18), even a bit greater.

To the northeast of pyramid 16 will be seen the grading for the stadium, within whose floor the white lines 120,000E and 171,000N intersect. To the left of the stadium should be the south end of the third great pyramid, the northerly "17" of Middendorf.

Adjoining the main body of "16" at its lower left is the extensive but lower terrace which Middendorf numbered "18" and I called "southwest extension of 16."

The highway is essentially straight in the air map, but my 1925 diagrams show a slight bend in it at the southeast corner of 16, where the road had cut a little into the huaca, but bent southward to avoid cutting deeper into it, as apparently it has by now cut in. The 1925 road can be seen as a flat isosceles triangle (point downward) where it leaves and rejoins the present straight Avenida.

The small buildings at the edge of "extension 16" and southwest of it were of course absent in 1925, and Mr. Stumer tells me they have now been



FIG. 93. Air photograph of Maranga pyramids 16 and 15, showing, respectively, as a whitish rectangle north of the Lima-Callao highway, and as a whitish, irregular, three-lobed mass opposite, to the south of the highway. Scale 1:8000.

removed to make room for a large hospital. The three bare fields to the west of 16 were all vineyards in 1925, if my memory is correct.

As two roads now cut the southern edge of 16 and its extension terrace, its original southern foot is rather difficult to locate on the photograph. I assume, however, that this foot was at the highway about midway of the breadth of the main pyramid, between the two trees there at the edge of the pavement. From there to the northern foot is 82 mm. on the original map, which at 1:4000 would give 328 meters as the length of the mound as against my estimated 387 paces or 290 meters.

With this interpretation of the south edge of 16, there corresponds the fact that both Middendorf (1893, p. 80) and I (fig. 1) show "18" (or the southwest extension of 16) projecting somewhat south of 16 itself in a lower terrace, whereas the main higher terrace of the extension is set back from the south front of 16.

The Huaca 15 shows up whitish and very plain in the photograph, with its northern, middle, and main lobes, and the pronounced neck between the two last. I am pleased that I got the general outline so essentially correct with no more aids than eye and stepping off. Even my indicated summit (fig. 9) is visible from the air. Of course the direction departs from true north as for 16. I imagine I can see in the air photograph the remnants of my Proto-Lima excavation in a seeming depression, but it would hardly be safe to press this.

Jijón's Plano I of his huaca No. III (= 15) also corresponds well with the air photograph—at some points better than mine, at others not so well.

It will be seen that Lat. $12^{\circ} 04' S.$ crosses pyramid 15 in the northern part of its middle lobe. The maximum length of the irregular structure is shown to be close to 300 meters.

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